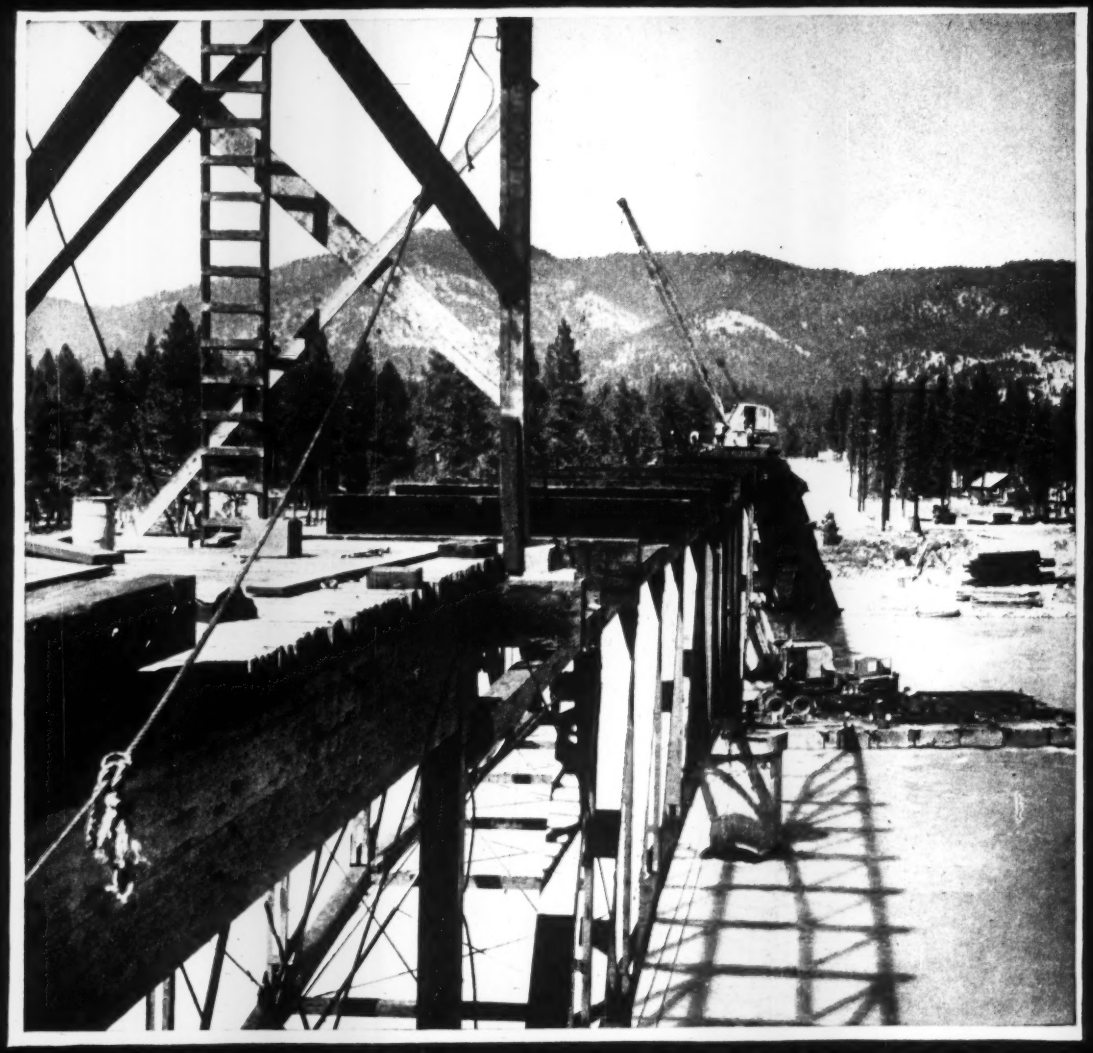
ENGINEERING NEWS-RECORD



A McGRAW HILL PUBLICATION

These Dallas, Texas building records prove WROUGHT IRON PIPE lives up to its LONGER LIFE reputation

The pipe that lasts the longest costs the least.

"Which piping material will last the longest?"—that's the big question which faces everyone who has the say-so on piping for corrosive services. To find the *right* answer—essential in these days of rising maintenance and replacement charges—more and more cost-conscious planners are turning to *past service records* for their yardstick to selection.

How successfully Byers Wrought Iron pipe "measures up" when engineers and architects go after this how-long-does-it-last story is reflected in the increasing use of the material in every aspect of today's modern building.

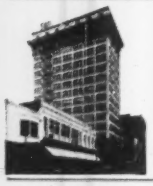
Small wonder for this confidence!

Take these eight Dallas Buildings, for example. In each installation, wrought iron pipe is providing long life service at lower cost per year. And designers everywhere are finding similar wrought iron performance records.

If you are in doubt about pipe for some corrosive service, we'll be happy to show you past wrought iron service records to fit your particular problem. Just address your letter to our Engineering Service Department . . . your request will be handled promptly.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, New York.

COMMERCIAL BUILDING
ERECTED—1899
SERVICES: Hot and cold water; steam supply and returns



PRAETORIAN BUILDING
ERECTED—1907
SERVICES: Hot, cold and drinking water lines

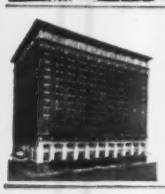
UNION TERMINAL BUILDING
ERECTED—1915
SERVICES: Hot, cold and drinking water lines; downspouts; steam supply and returns

FIRST NATIONAL BANK BUILDING
ERECTED—1917
SERVICES: Hot, cold and drinking water lines

MAGNOLIA BUILDING
ERECTED—1920
SERVICES: Hot, cold and drinking water lines; Durham system drainage; fire lines; steam supply and returns

REPUBLIC NATIONAL BANK BUILDING
ERECTED—1924
SERVICES: Hot, cold and drinking water lines

COTTON EXCHANGE BUILDING
ERECTED—1925
SERVICES: Hot, cold and drinking water lines



BAKER HOTEL
ERECTED—1925
SERVICES: Hot, cold and drinking water lines; steam supply and returns; condenser water on air conditioning

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

"CUSHIONED" against wear

Reason Why Redwing-H Air Hose Gives Top Heavy-Duty Performance on the Job

You can depend on REDWING-H Cord Air Hose for longest, trouble-free service — even in the roughest kind of going in mines, quarries and construction operations.

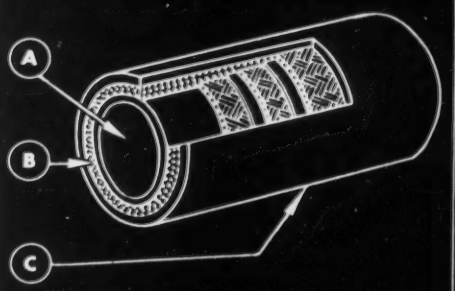
Reason is that this hose was developed by the G.T.M.—Goodyear Technical Man—to take hard knocks. Its cover—bright red in color—is resilient, tough stock that bounces away digs, cuts and abrasion. Under this super-strong cushion are multi-braids of high-strength rayon reinforcement—and a seamless, oil-resistant tube. Everything about REDWING-H adds up to longer, better service.

Ask the G.T.M. or your Goodyear Distributor about REDWING-H Cord Air Hose for your toughest jobs—available in continuous lengths, sizes from ½" to 1½" i.d. for working pressures from 200 to 350 lbs. psi. Write Goodyear, Mechanical Goods Division, Akron 16, Ohio.

GOODYEAR INDUSTRIAL RUBBER PRODUCTS

GTM-Specified

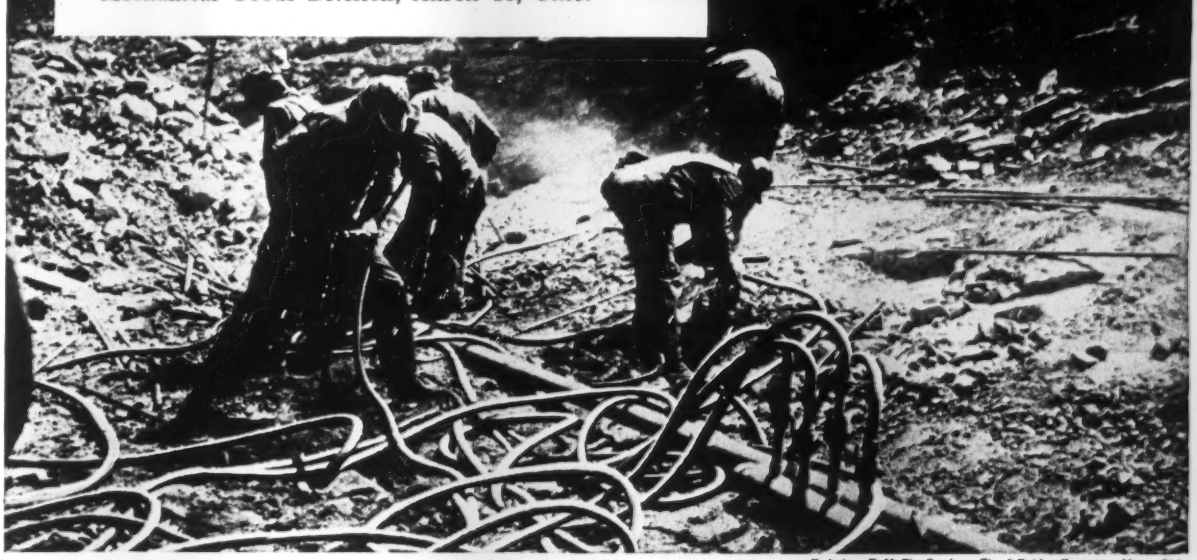
REDWING-H CORD AIR HOSE



A Synthetic tube is seamless, non-porous, non-flaking, oil-resistant

B Two or three braids of high-strength rayon reinforce against shock blows

C Red cover of heavy, resilient stock bounces away abrasion, cuts, gouges



Redwing—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

YOUR GOODYEAR DISTRIBUTOR *can quickly supply you with Hose, Flat Belts, V-Belts, Packing, Tank Lining, Rubber-Covered Rolls. Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."*

GOODYEAR

THE GREATEST NAME IN RUBBER

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

HENDRICKSON BROS. SAYS FOUNDATION'S PRE-BIDS SAVE TIME AND MONEY

March 23, 1953

Foundation Equipment Corp.
Long Island City 1, N.Y.

Gentlemen:

We most certainly find your pre-bid service on wellpoint dewatering jobs extremely beneficial to us in expediting the preparation of bids. These pre-bids save us a great deal of time, as well as money, and we would very much like to see your firm expand in this service.

Yours very truly,

Sam Spartin
Vice President

WELLPOINT
Dewatering Systems
RENTALS SALES

26 YEARS EXPERIENCE

Foundation Equipment Corporation

Long Island City 1, N.Y.—38th Ave. and 10th St.
EXeter 2-1100

Chicago, Illinois — 2608 W. 111th St.
Hilltop 5-8282

ENGINEERING NEWS-RECORD

ABP Member ABC

Editorial offices: 330 W. 42nd St., New York 36, Tel. LOngacre 4-3000

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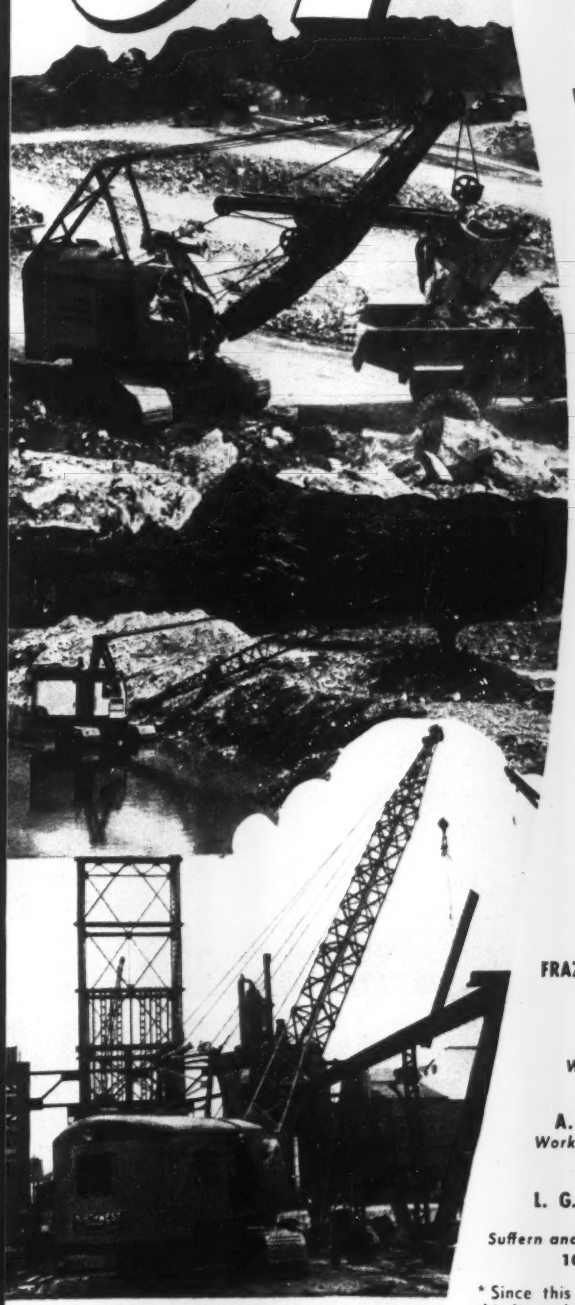
64* NORTHWESTS on the New York Thruway



MT. VERNON CONTRACTING CO.
Healy & Gamino
Working in Rockland County, N. Y.
9 Northwests

SAVIN CONSTRUCTION CORP.
in Green County
and Madison County, N. Y.
4 Northwests

COLLINS BROTHERS
in Albany County
and Herkimer County, N. Y.
7 Northwests

WHITE OAK CONTRACTING CO.
in Schenectady County, N. Y.
2 Northwests

B. PERINI & SONS
in Schenectady County
and Montgomery County, N. Y.
4 Northwests

GRAND VIEW CONSTRUCTION CO.
in Montgomery County, N. Y.
2 Northwests

S. J. GROVES & SONS CO.
in Montgomery County, N. Y.
2 Northwests

SENECA COUNTY
1 Northwest

D. W. WINKLEMAN INC.
in Onondaga County, N. Y.
4 Northwests

ONTARIO COUNTY
2 Northwests

MONROE COUNTY
1 Northwest

ARUTE BROTHERS
in Genesee County, N. Y.
1 Northwest

A. S. WIKSTROM
in Cayuga County, N. Y.
2 Northwests

R. E. DUTCHER
in Monroe County, N. Y.
1 Northwest

C. P. WARD
in Monroe County, N. Y.
1 Northwest

FRAZIER DAVIS CONSTRUCTION CO.
in Erie County, N. Y.
5 Northwests

JOHN ARBORIO
Working near Kingston, N. Y.
3 Northwests

A. H. DAUGHERTY CO.
Working near Newburgh, N. Y.
3 Northwests

L. G. DEFELICE & SON
Working in
Suffern and Herkimer Counties, N. Y.
10 Northwests

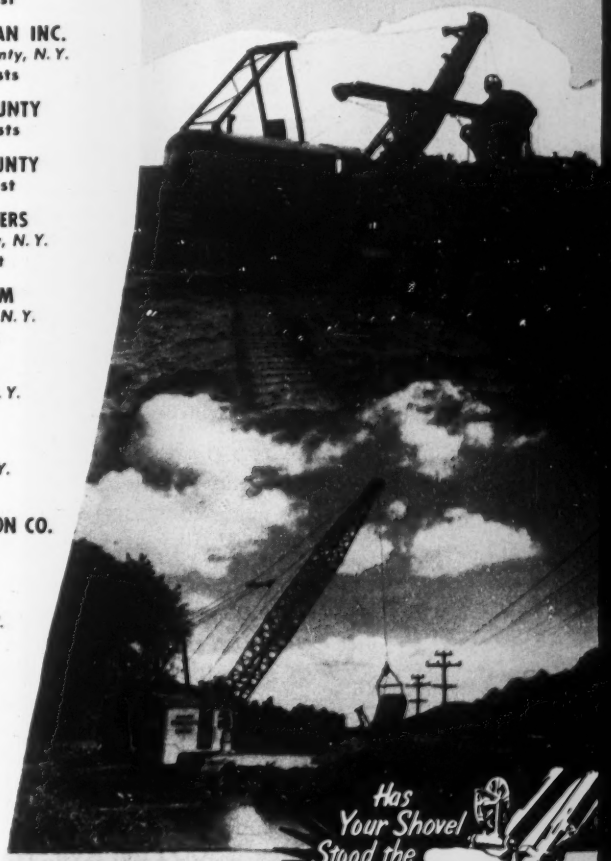
* Since this ad was prepared this figure has increased to 72.

There's a figure to think about. 64 Northwests in the hands of responsible contractors on the New York Thruway. More Northwests than any other make of similar equipment.

The reasons why Northwests are so dominant on construction jobs everywhere are worth your checking into.

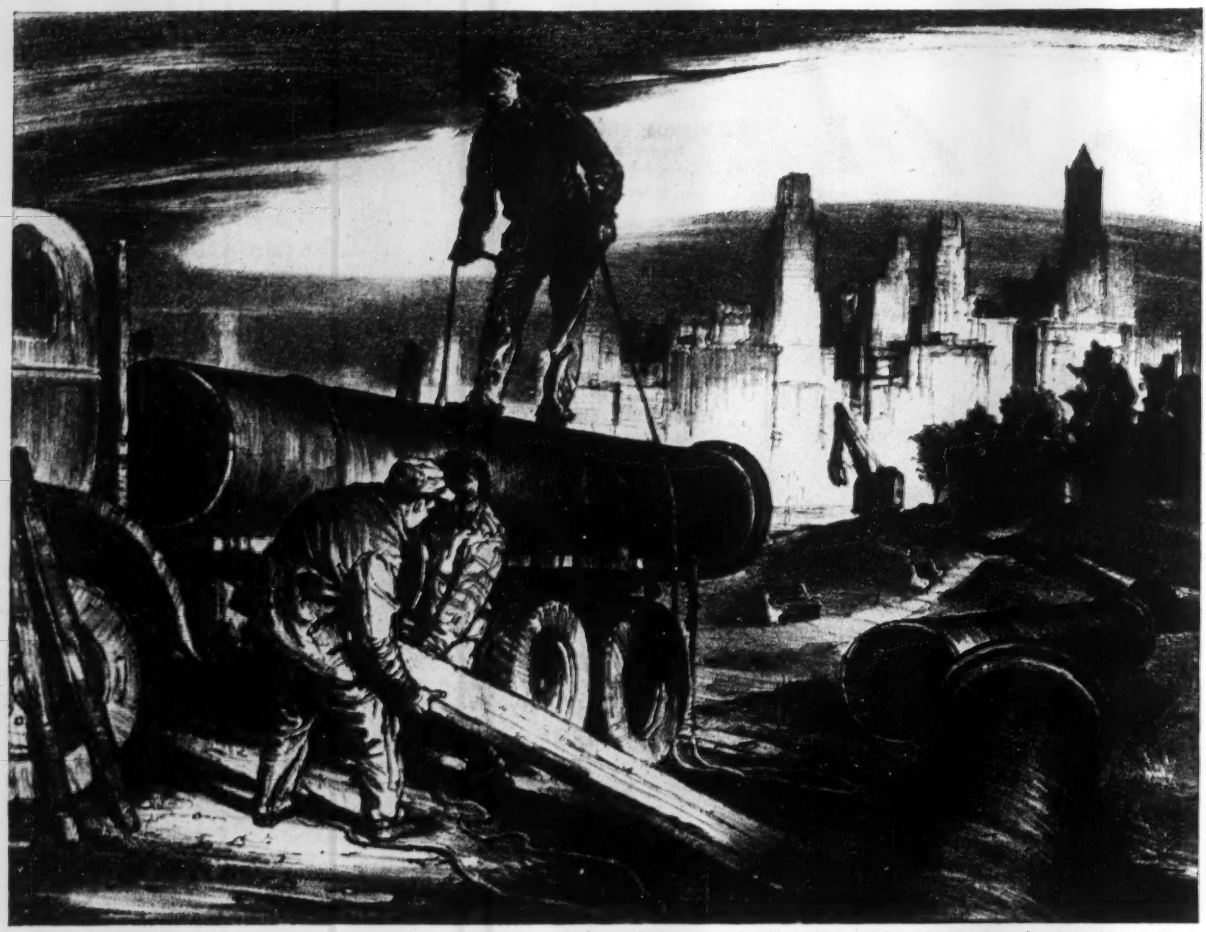
Look over the list of Northwest owners on the Thruway. Their names alone form a testimonial to the quality of Northwest performance—a testimonial that is an assurance to future Northwest owners that Northwest will give them the type of service they are looking for.

NORTHWEST ENGINEERING COMPANY
1502 Field Building
135 South LaSalle Street, Chicago 3, Illinois



NORTHWEST

SHOVELS • CRANES
DRAGLINES
PULLSHOVELS



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

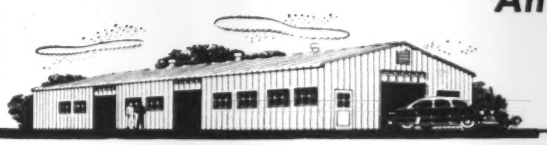
CAST IRON PIPE being unloaded as shown above may be for use in the city's water, gas or sewerage system. The more-than-a-century service record of cast iron pipe in this country is a strong reminder that the installation of this pipe will be not only for the benefit of the present generation but for many more to follow.

U. S. cast iron pipe, centrifugally cast in metal molds, retains the good characteristics of the older type of pipe and incorporates the superior properties of strength and uniformity imparted by this modern casting process and quality controls.

We are well equipped to furnish your requirements for cast iron pipe and fittings made in accordance with American Standard, American Water Works Association and Federal specifications. U. S. pipe centrifugally cast in metal molds is available in sizes 2- to 24-inch and pit cast pipe in the larger sizes.

U.S.
cast iron
PIPE

United States Pipe and Foundry Co.,
General Office, 3300 First Ave., N. • Birmingham 2, Ala.
Plants and Sales Offices Throughout the U. S. A.



Another **BUTLER** construction feature for better steel buildings

RIGID FRAME CONSTRUCTION

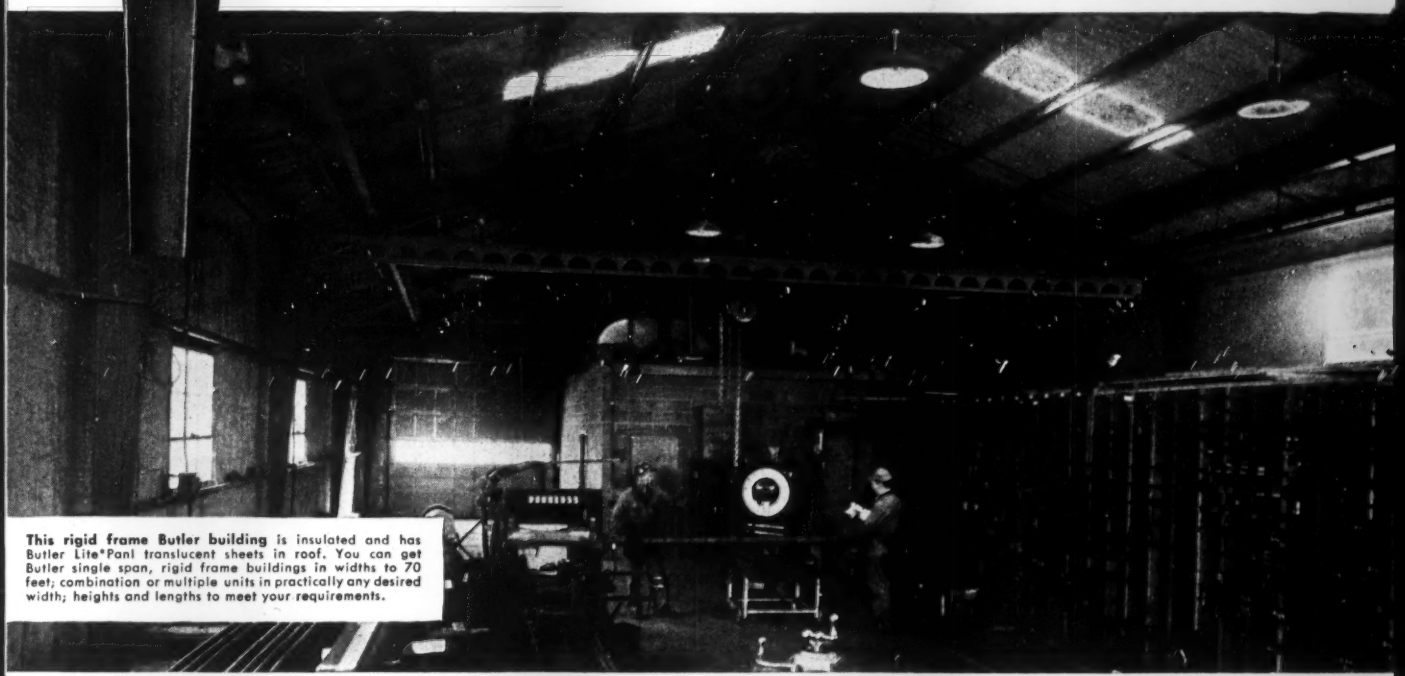
gives you full usable space

Clear span interior makes every foot of space in a Butler building fully usable. Rigid frame structural steel members also assure greater strength with less weight for maximum economy. The extra-deep corrugated galvanized or aluminum sheets, bolted and locked to the sturdy framework, stay tight and true through the years. Butler pre-engineering insures fast, easy, low-cost field erection—and also insures 100% re-use of materials for building expansion or removal to a new location.

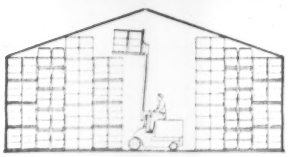
Rigid frame furnishes strength at any point for monorails, hoists or craneways.

Only BUTLER *gives you ALL these advantages:*

- **Clear span, rigid frame construction**
- **Deep-formed corrugated sheets, galvanized or aluminum (alternate wall materials may also be used)**
- **Bolted construction for extra strength**
- **Weather-tight die-formed, one-piece roof ridge**
- **Sidewall sheets mitered for weather-tight fit with eave sheets**
- **Weather-tight ventilators**
- **Easily insulated**
- **Complete adaptability to your door and window requirements**



This rigid frame Butler building is insulated and has Butler Lite*Panl translucent sheets in roof. You can get Butler single span, rigid frame buildings in widths to 70 feet; combination or multiple units in practically any desired width; heights and lengths to meet your requirements.



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☐ Send name of my nearest Butler dealer.
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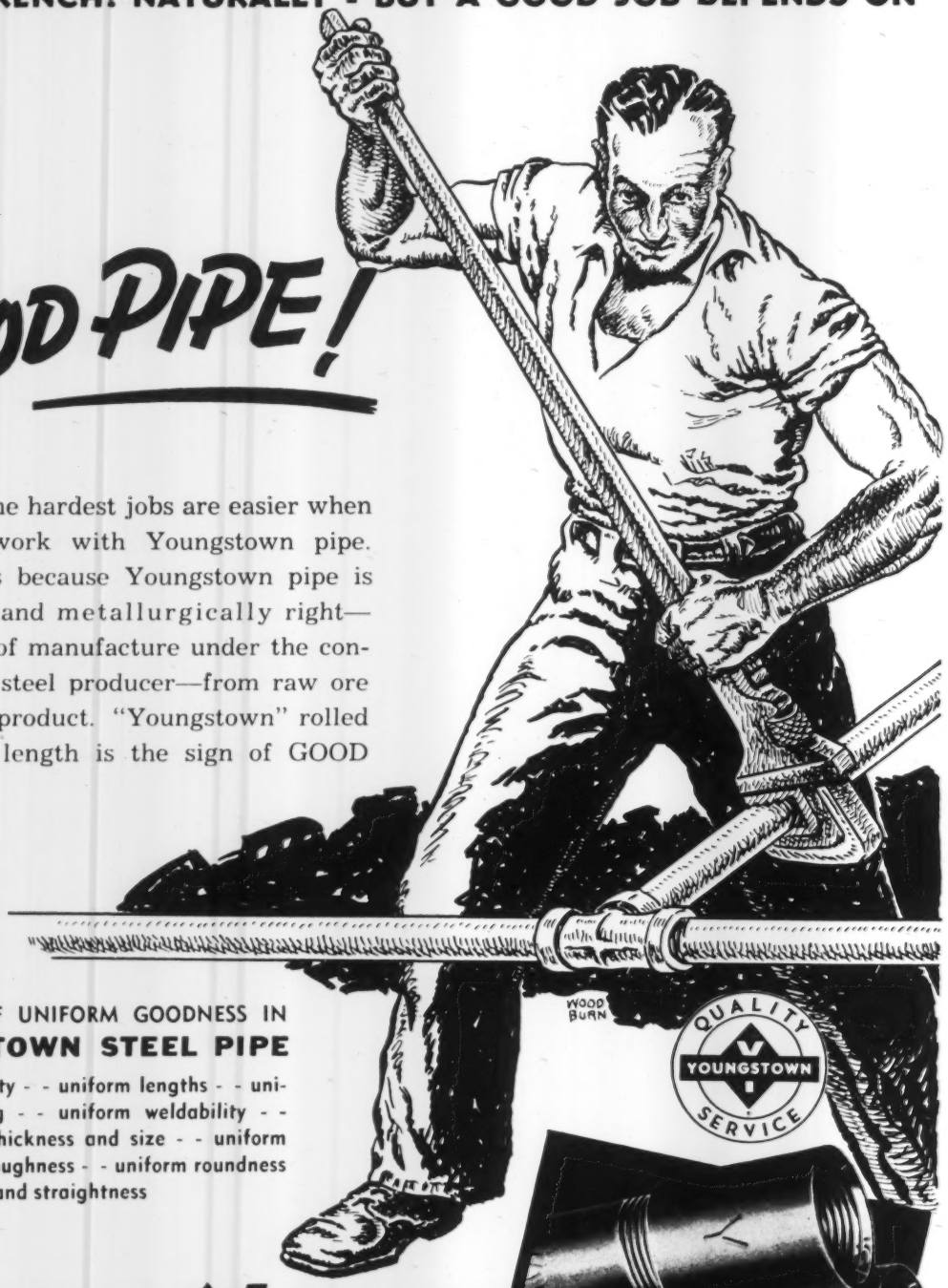
Firm .....
Address .....
City ..... Zone ..... State .....

GOOD WRENCH? NATURALLY - BUT A GOOD JOB DEPENDS ON

GOOD PIPE!

EVEN the hardest jobs are easier when you work with Youngstown pipe. That's because Youngstown pipe is chemically and metallurgically right—every step of manufacture under the control of one steel producer—from raw ore to finished product. "Youngstown" rolled into every length is the sign of GOOD PIPE.



7 POINTS OF UNIFORM GOODNESS IN
YOUNGSTOWN STEEL PIPE

uniform ductility - - uniform lengths - - uniform threading - - uniform weldability - - uniform wall thickness and size - - uniform strength and toughness - - uniform roundness and straightness

QUALITY
YOUNGSTOWN
SERVICE

Youngstown
STEEL PIPE

THE YOUNGSTOWN SHEET AND TUBE COMPANY
General Offices: Youngstown, Ohio - Export Office: 500 Fifth Avenue, New York 36, N. Y.
PIPE AND TUBULAR PRODUCTS - CONDUIT - BARS - RODS - COLD FINISHED CARBON AND ALLOY BARS - SHEETS - PLATES - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - RAILROAD TRACK SPIKES

Hundreds of users say—

Adams "550" Motor Grader

does more work than other 100 H. P. machines

Here's Why—

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- Grader is Easy to Handle.
- Grader Works Faster Because Operator Has Choice of 8 Speeds.
- Grader Maneuvers Faster Because of High Transport Speed—25 M.P.H.—and 4 Reverse Speeds—up to 13 M.P.H.

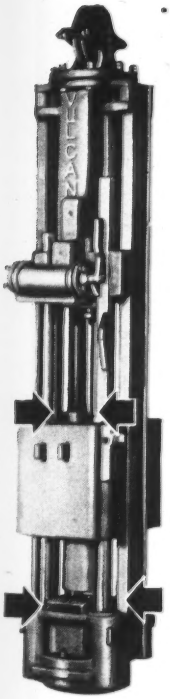
J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, IND.

Let Your Local Adams Dealer Demonstrate These Facts. Phone Him Today!

Make your next motor grader an

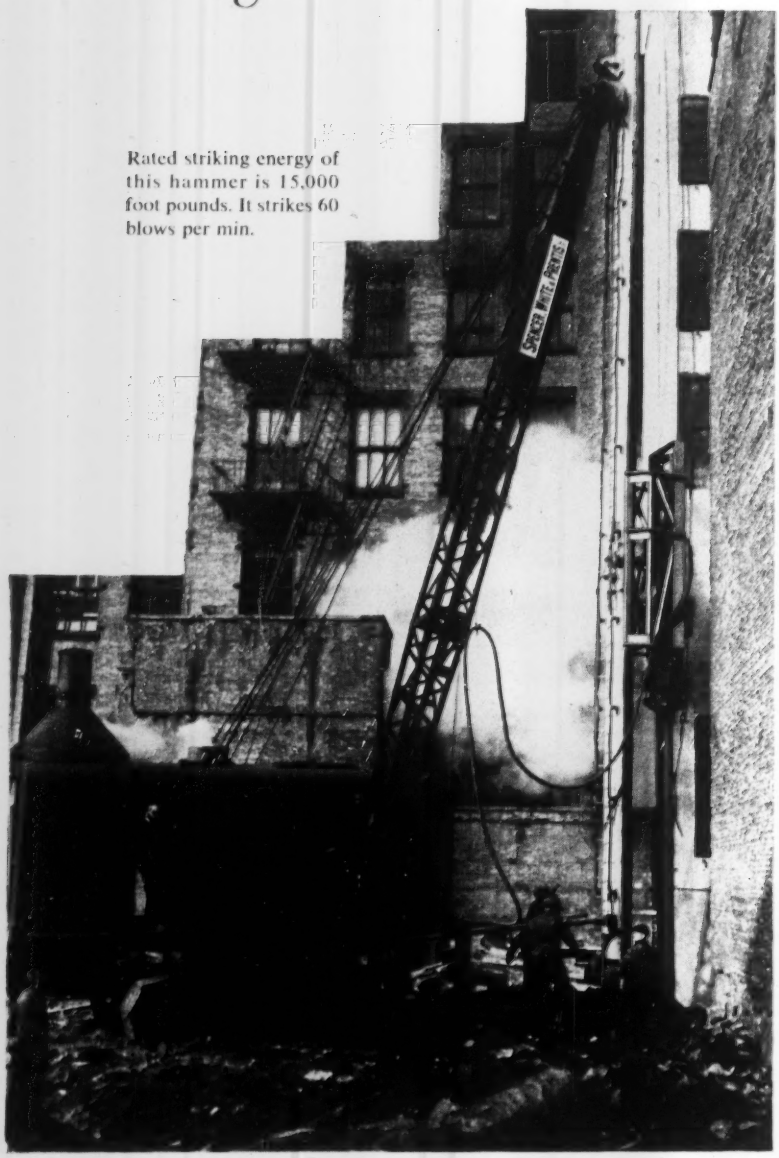
ADAMS

"U.S." cushions a pile hammer ...using a 53-year-old design



Arrows indicate the "U. S." rubber bumpers. Despite the terrific series of impacts, they retain their natural resilience.

Rated striking energy of this hammer is 15,000 foot pounds. It strikes 60 blows per min.



This pile hammer is equipped with 2 "U. S." rubber bumpers at the top of the ram, and 2 at the base. It's their job to absorb the smashing over-drive of the hammer and prolong the life of the equipment. But the main point is that for the last *53 years these bumpers have been built according to the same blueprint*. So perfect was the design that the makers of the hammer have never required any change.

This is an example of the quality built into every United States Rubber Company product. "U. S." engineers stand ready to work with you in the improvement of any product. Consult them at any of our 25 District Sales Offices. Or write to address below.

. . . . . .

Another "U. S." leader that has rolled up enviable records for long service is Matchless® High Pressure Steam and Pile Driver Hose. It is burst-proof, for the protection of the worker.

U.S. RUBBER
SERVING THROUGH SCIENCE

"U. S." Research perfects it..."U. S." Production builds it...U. S. Industry depends on it.

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

Raymond Features!

NUMBER SIX OF A SERIES

Raymond service

SAVES YOU MONEY!

FOR the Anheuser-Busch Brewery, Newark, New Jersey, the Raymond Concrete Pile Company performed the soil investigation, drove the test piles, and installed the bearing piles. The work was completed ahead of schedule—a typical example of Raymond's three-point service in action. We welcome the opportunity of discussing your foundation problems.

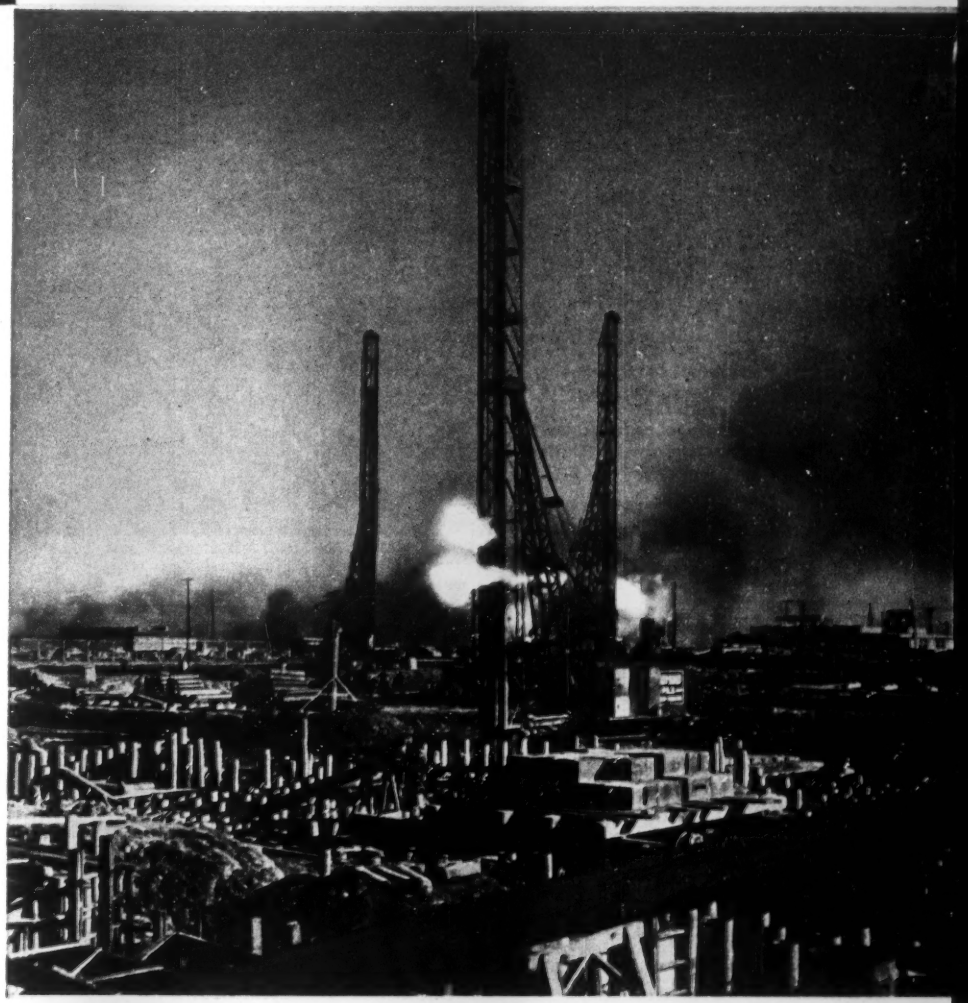
RAYMOND'S DOMESTIC SERVICES . . .

SOIL INVESTIGATIONS • FOUNDATION CONSTRUCTION • HARBOR AND WATERFRONT IMPROVEMENTS PRESTRESSED CONCRETE CONSTRUCTION • CEMENT-MORTAR LINING OF WATER, OIL AND GAS PIPELINES IN PLACE.

RAYMOND'S SERVICES ABROAD . . .

AROUND THE WORLD FOUNDED 1891

In addition to the above, all types of General Construction.



Raymond rigs driving piles at the Anheuser-Busch Brewery in Newark, N. J.

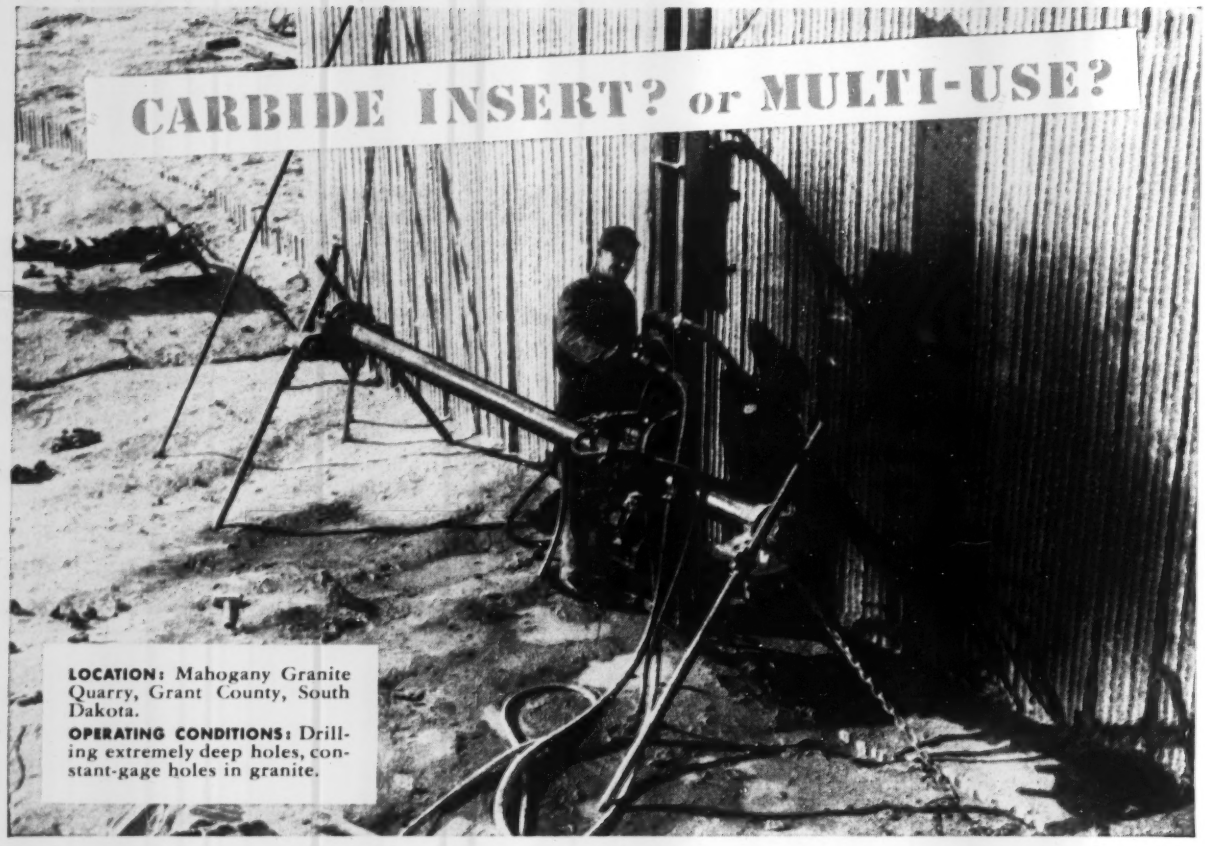
ENGINEERS: Harley Ellington & Day, Detroit
GENERAL CONTRACTOR: Geo. A. Fuller Co., New York

Raymond

CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

Branch Offices in the Principal Cities of United States and Central and South America


CARBIDE INSERT? or MULTI-USE?
LOCATION: Mahogany Granite Quarry, Grant County, South Dakota.
OPERATING CONDITIONS: Drilling extremely deep holes, constant-gage holes in granite.

With TIMKEN® carbide insert bits, Steiner-Rausch Granite Corp. drills granite at 6¢ per foot, increases production 33%!

PRODUCTION jumped 33%, costs dropped to 6¢ per foot when Steiner-Rausch Granite Corp. used Timken® carbide insert bits to drill constant-gage holes and extremely deep holes at its Mahogany Granite Quarry in Grant County, South Dakota.

Timken carbide insert bits are most economical for constant-gage holes, small diameter blast holes and very deep holes. They're your best bet for highest speed through hard and abrasive ground.

But they may *not* always be best for *all* your drilling problems!

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Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

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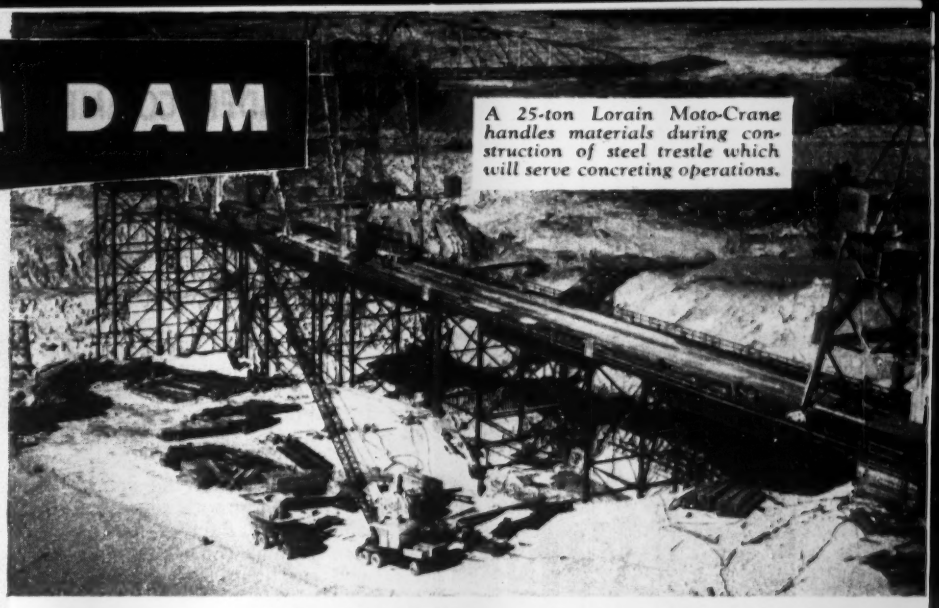
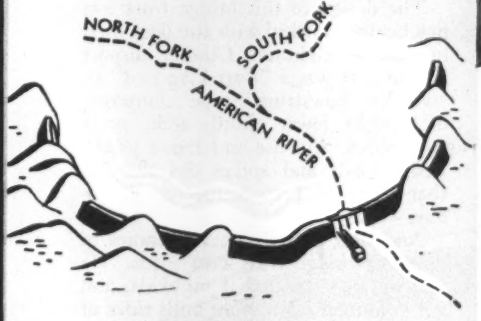
FOLSOM DAM



A 25-ton Lorain Moto-Crane handles materials during construction of steel trestle which will serve concreting operations.

$65,000,000 CHALLENGE TO CALIFORNIA'S AMERICAN RIVER



A 2-yard Lorain 820-J uses a 60-ft. boom and dragline bucket to dredge gravel taken from a nearby stream bed.

Power and irrigation project to bring Sacramento Valley new water control!

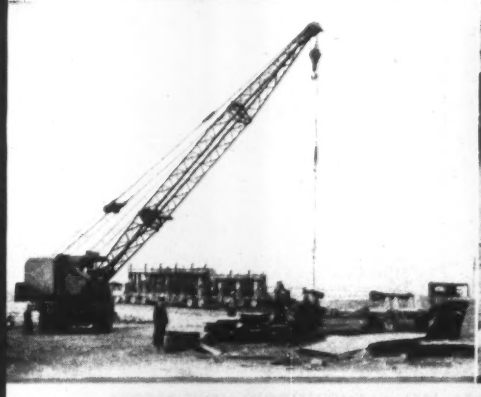
Much has been written about the fabulous Folsom Dam . . . key structure in the American River Basin development. To California's Sacramento Valley it will mean a new future of flood control, irrigation and power.

Job facts are symbolic of the genius and foresight of our country's engineers. The overall project is rated at $65,000,000 — under the jurisdiction of U. S. Army Engineers and The U. S. Bureau of Reclamation. The dam's main concrete section is 1400 ft. long, 340 ft. high. 9,000,000 yards of earth and rock excavation is involved — plus 8,800,000 yards of fill on wing dikes extending 2 miles on the sides of the dam. 8 rolled-earth saddle dikes also are to be built around the reservoir rim. Every conceivable material from sand to bed rock must be moved.

Scattered all over vast Folsom Dam are numerous Lorain shovels, cranes, draglines, hoes and clamshells. Merritt-Chapman & Scott, New York and Savin Construction Corp., Hartford, Conn. — (joint-venture contractors on $30,000,000 construction) — are long time Lorain owners. Their combined purchases total 60 Lorains — many of them now serving on Folsom. A few are shown in action — typical of the varied and demanding jobs Lorains are called upon to perform.

Lorains *do* get the call on the big jobs . . . because the men that bid them know from experience that Lorain performance will meet tight deadlines — and earn profits. And back of every bid is the fast, efficient service of a Thew-Lorain Distributor. It will pay you to base your bid on Lorains, too! *The Thew Shovel Co., Lorain, Ohio*

THEW-LORAIN.



A 25-ton Lorain Moto-Crane goes places — fast — all over huge Folsom Dam, to lift, load or handle scores of incoming materials.

Here, a Lorain 50-K Hoe, mounted on a crawler 14 ft. long, cleans out excavation down to bedrock for concrete spillway foundation. Lorains of all types — on crawler and rubber-tires — handled all classes of excavation.

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READER COMMENT

Prestressing costs more

SIR: In ENR, July 9, p. 6, Donovan H. Lee, consulting engineer, London, makes the audacious statement: "It is now taken for granted in England that the majority of new road bridges will be of prestressed concrete."

We cannot pretend to speak for the whole of England in such a way, but as consulting engineers responsible for many road bridges, we take the strongest exception to such a sweeping statement. We are of the opinion that, generally, prestressed concrete with the same factor of safety is more expensive than normal (or perhaps we might now say traditional) reinforced concrete.

OWEN WILLIAMS
Consulting Engineer
Sir Owen Williams and Partners
London, England

Not just ashes

SIR: In the Aug. 20 issue of the ENGINEERING NEWS-RECORD on p. 118 you have the title "Effect of incinerator ashes on ground water reported." There is nothing in the following article that has anything to say about incinerator ash; it is a discussion of leaching of sanitary landfill.

Incinerator ashes from some of our plants have been dumped on watersheds without causing any problem, even after having been carefully checked by public health officials.

We presume that this heading is incorrect.

BRANNEN B. SELPH
Nichols Engineering & Research Corp.

[EDITOR'S NOTE—This was a report of studies on teaching of a typical sanitary landfill—not specifically incinerator ashes. This head was misleading.]

Long timber trusses

SIR: I note with interest the article "Hangar's Timber Trusses set New Span Record" (ENR Sept. 3, 1953, p. 51). May I point out some historical data on timber trusses? Perhaps 248 ft single-span is a record for arched timber roof trusses, but at least four timber bridge trusses greatly exceeded this figure, and they were all built from 94 to 159 years ago.

In 1794, Timothy Palmer erected his "Great Arch" over the bay which opens into the Piscataqua River above Portsmouth, N. H. This was a timber arch of 250 ft span.

In 1859, the Delaware River at Narrowsburg, N. Y. was spanned by a single arch of 262-ft, designed and erected by George W. Thayer. And 343 feet was the length of the "Colossus Bridge," built across the Schuylkill River at Philadelphia by Lewis Wernwag in 1812.

But the greatest timber arch of all was built in 1815 at McCall's Ferry, Pa. Theodore Burr designed and erected this bridge, across a deep gorge of the Susquehanna River. It was 367 ft long, with a 31 ft rise to the arch. Its clear span was 360 ft, 4 in.

The design of this bridge truss was practically identical with the ones used in the Westchester County airport hangars. It was a "Burr king-post" or "wooden bowstring" type composed of straight lower chord, arch, posts and braces. Mortise and tenon joints, wedges, fids and spikes did the job that glue and Teco connectors do today.

And Burr didn't have two cranes to raise his bridge truss into place. He and his men erected it on skids, and got volunteer labor from both sides of the river to push it downstream to the bridge site, over the ice of the frozen Susquehanna.

RICHARD S. ALLEN
Chairman, New York State Historical Association Site Committee

CALENDAR

National Electrical Industries Show, 69th Regiment Armory, New York City, Sept. 29-Oct. 2.
Southeastern Association of State Highway Officials, annual meeting, Asheville, N. C., Sept. 30-Oct. 3.
Structural Engineers Association of California, The Ahwahnee, Yosemite National Park, Oct. 8-10.
National Conference of Industrial Hydraulics, Hotel Sheraton, Chicago, Oct. 8-9.
American Concrete Pressure Pipe Association, convention and meeting, Ponte Vedra Inn, Ponte Vedra, Fla., Oct. 8-10.
Concrete Reinforcing Steel Institute, semi-annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 12-17.
Federation of Sewage and Industrial Wastes Associations, Municipal Auditorium, Miami, Fla., Oct. 13-16.
National Reclamation Association, Mapes Hotel, Reno, Nev., Oct. 14-16.
Engineers Council for Professional Development, Hotel Statler, New York City, Oct. 14-17.
American Society of Civil Engineers, annual meeting, Hotel Statler, New York City, Oct. 19-23.
Society of American Military Engineers, semi-annual convention, George Washington Hotel, Jacksonville, Fla., Oct. 25-26.
American Public Works Association, annual public works congress and equipment show, Roosevelt Hotel and Municipal Auditorium, New Orleans, La., Oct. 26-29.
California Section, American Water Works Association, Palace Hotel, San Francisco, Calif., Oct. 27-30.

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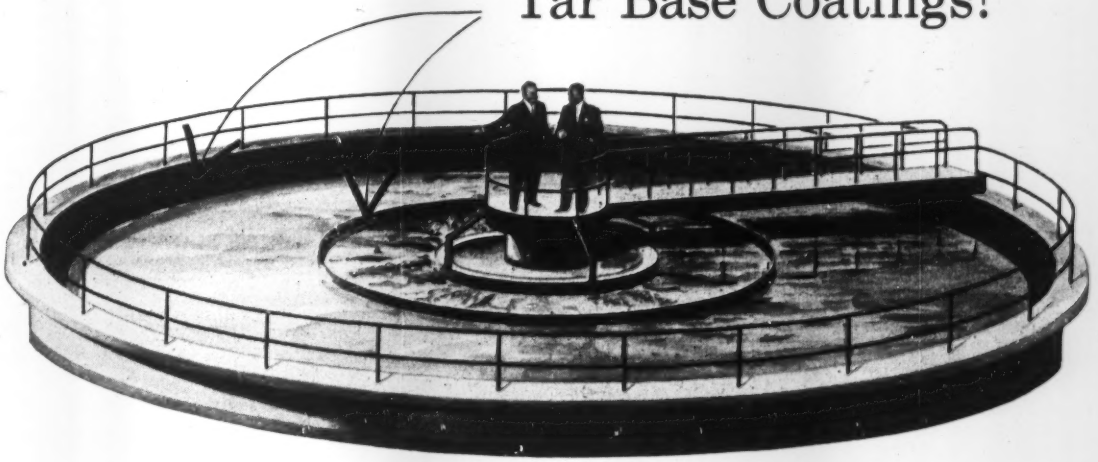

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Houston Contracting Company of Houston, Texas, uses Shell Rotella Oil on Caterpillar Diesel D8 tractors. The photograph shows work on the McCamey-Houston, Texas, pipeline extension

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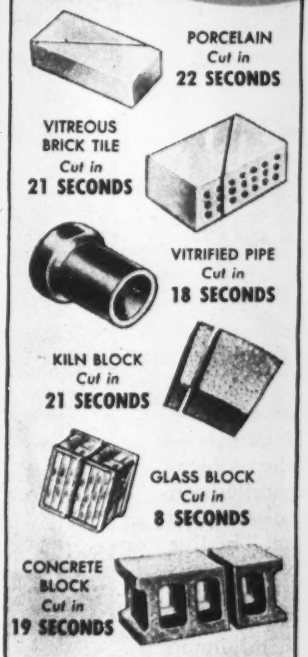

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TO HANDLE 19,000,000 gallons of water per day at a pressure of 12 pounds — without leaks—was just part of the problem facing the engineers at Crown Zellerbach Corp. in the construction of the new supply line at Port Angeles, Washington. The line had to be laid along the shores of the Straits of Juan de Fuca — below sea level — on treacherously shifting soil — and, partially on a 1° curve. Low initial cost, minimum maintenance, and long life were also major factors of consideration.

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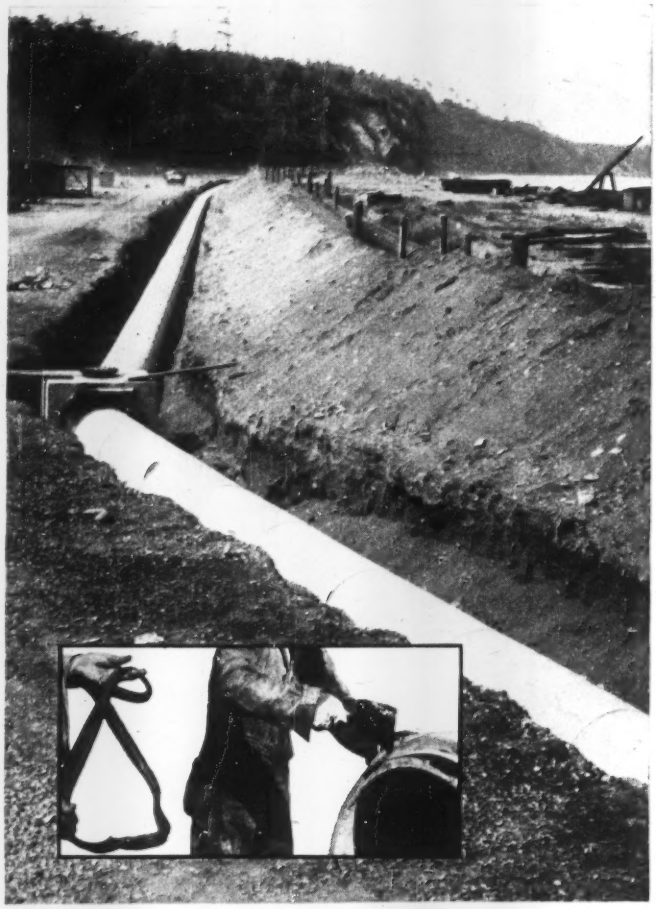

THUMBNAIL FACTS ABOUT THE PORT ANGELES JOB

Location: Port Angeles, Washington

Pipe: 1750 feet concrete pipe 36" x 8' SR (ASTM C-76-41). Manufactured by Port Angeles Concrete Products Co., affiliate of Graystone Concrete Products Co., Seattle, Wash.

Couplings: TYLOX flexible rubber joints

Engineers: Engineering Dept., Crown Zellerbach Corp.

Write, wire, or phone for specifications and literature on TYLOX Gaskets.

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T702

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THE CONSTRUCTION WEEK

- **Dim view on pike prospects**—Other states may push hard on turnpikes and toll express highways—but such roads aren't the answer for Virginia, according to state officials. In fact, says J. A. Anderson, Virginia's highway commissioner, he'll be surprised if as much as 200 mi of toll roads are built in his state in the next 10 years.

  Anderson's glum statement seemed to put an official damper on toll road talk that's been running through the state—including proposed stretches between Richmond and Petersburg, and a tollway to connect proposed toll roads in North Carolina and West Virginia. "Toll roads," explained the commissioner, "cannot be a major factor in alleviating Virginia's highway deficiencies."

- **Ohio pike moves**—But while Virginians were thus not pleased with superhighway prospects, Ohio's much-beleaguered pike was getting under way much faster than its supporters thought possible.

  A second report on progress showed that engineering work has been completed and the 241-mi road is 42% under contract, with right-of-way acquisitions proceeding on schedule.

- **Salaries stay up**—If you want to make most money—be a contractor. That seemed to be the key point for civil engineers, in a survey completed by the National Society of Professional Engineers.

  NSPE's study committee (headed by famed tunnel engineer Ole Singstad), contacted 12,000 engineers (42% civils) and came up with these results:

  Median annual income for chemicals was $8,910; mining engineers, $8,730; mechanicals, $8,250; electricals, $7,940; civils, $7,390.

  But classified by fields of employment, the medians ran this way:

  Engineers working as contractors, $9,920.

- **Location compromise?**—San Francisco city officials are on the anxious seat, hoping that state and Navy officials can come to some kind of an agreement that will meet Navy objections to the proposed location of an Army Street crossing of San Francisco Bay.

  San Franciscans weren't waiting patiently, either. Angered by the sudden Navy objections (because of an apaprently suddenly conceived seaplane landing base (ENR Sept. 3 p. 24), they were pressuring all concerned to come up with an answer. "There's quite a long stretch of bay between the present San Francisco-Oakland bridge and the Army Street site," they pointed out. "There should be some room for adjustment of the Navy's sea lanes.

- **Shift coming?**—You can't nail down the story in Washington, but the rumor goes this way: Brig. Gen. Emerson C. Itschner, division engineer of the North Pacific Division, is expected to be ordered soon to Washington to succeed Brig. Gen. Claude H. Chorpening as Assistant Chief of Engineers for civil works.

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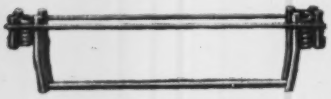
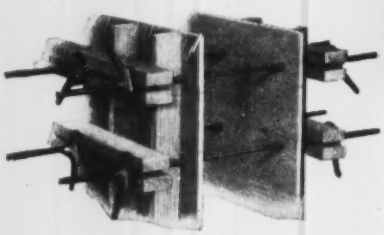


SPECIAL HANGER FRAMES

WIRE BEAM SADDLES

"PICK-UP" INSERTS FOR "TILT-UP" SLABS



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Drop in sales of heavy construction equipment has Washington puzzled. Manufacturers are reporting slide in sales up to 25% below year ago—at a time when construction generally is running even or ahead of last year.

New contract awards are down 7% but the experts in government can't explain an equipment sales dropoff three times as great.

Awards for big earth-moving categories go both ways—highways, bridges, commercial buildings, waterworks and sewerage are up. Public building (including A. E. C.), public housing, dams and waterways are down.

But the figures just don't add up to an explanation of the hard drop in buying of construction machinery.

•

Construction agencies are still reshuffling this year's spending plans.

Army Engineers figure to spend $43 million less than the $543 million previously scheduled for flood control and rivers and harbors for the year ending next June. 30.

Bureau of Reclamation has trimmed back spending on 25 projects to save an estimated $8.2 million this year out of the $155 million it has on hand.

Bureau of Public Roads, on the other hand, is going to need $65 million more for payments to states than the $475 million Congress voted.

•

Housing chief Cole spoke bluntly to the bankers in Washington this week on the tight money market:

The hard money policy went too far, Cole admitted, in tightening credit in relation to demand. Cole put it this way—that the "readjustment" went farther "than was contemplated either in or out of the government." The Treasury, which defends its sound money campaign generally agrees housing has maybe been hit too hard.

Government credit will fill the gap, he warned, if private lenders fail to maintain "an adequate continuing flow of mortgage credit." A high level of housing starts is considered essential to a high level of general prosperity—and Cole plainly indicated that the Administration would step in quickly if a slowdown in housing starts threatened to contribute to a general business downturn.

•

Admiral Jelley knows military construction budgeting—and will have much to say about which projects contribute how much to the Administration's budget-balancing goal. (See page 21). Jelley's eight years at the top of Navy's Bureau of Yards and Docks make him expert at X-raying a budget request.

•

Naming a new Secretary of Labor produces all the pulling and hauling that went into choice of Durkin in the first place.

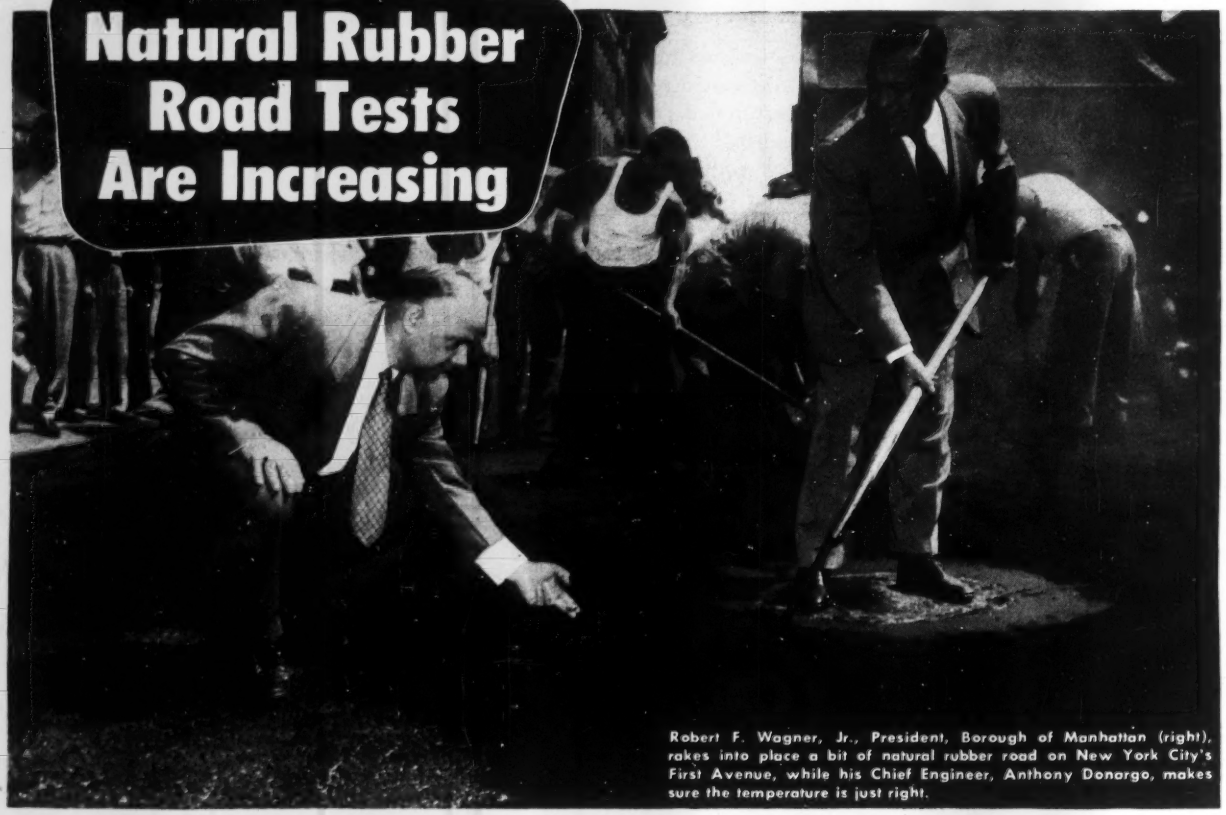
Chairman McConnell of House Labor Committee was under consideration—but that would mean elevating Rep. Ralph W. Gwinn of New York to chairmanship of the committee. And Gwinn is rated "too conservative" by Eisenhower advisers.

Assistant Sec. of Labor Siciliano was rated a long-shot possibility for the Durkin seat. He's former member of National Constructors Assn. labor committee.

•

First businessman to leave a sub-Cabinet post is Craig W. Sheaffer, Assistant Secretary of Commerce for Domestic Affairs. He resigned as an aftermath of the battery additive affair. Bureau of Standards was taken out from under Sheaffer at the time Sec. Weeks fully reinstated Dr. Astin as chief of the Bureau of Standards.

Natural Rubber Road Tests Are Increasing



Robert F. Wagner, Jr., President, Borough of Manhattan (right), rakes into place a bit of natural rubber road on New York City's First Avenue, while his Chief Engineer, Anthony Donargo, makes sure the temperature is just right.

3 Field Engineers Added to NRB Staff to Aid Test Progress

To meet the increasing need for technical assistance in planning and in laying test natural rubber roads, the Natural Rubber Bureau has added three field engineers to its staff of road experts.

All three are experienced highway engineers who have recently gone through an intensive training course on the application of natural rubber powder in highway construction at the Bureau's Research Laboratory.

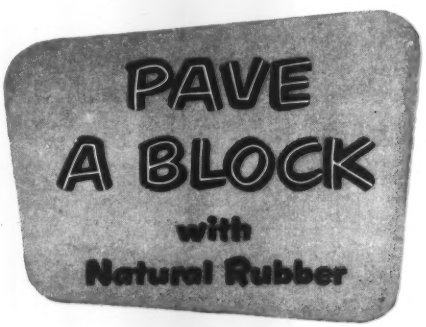
Many communities throughout the country are laying block-long test sections of natural rubber-asphalt paving so that their highway engineers can study the effects of local traffic and climate conditions. These tests may lead ultimately to substantial savings of taxpayers' dollars, by pointing the way to roads which will last longer and require less maintenance.

The Natural Rubber Bureau offers free information and technical assistance to all highway officials who wish to lay test roads incorporating natural rubber.

Natural Rubber Bureau

1631 K Street, N. W., Washington 6, D. C.

Natural Rubber Bureau Research Laboratory, Rosslyn, Virginia



It's good weather for borrowing

Investors stop waiting, grab over $400 million in bonds as market takes biggest lump of financing in its stride

By J. P. Chamberlain
Associate Editor

It looks as if corporations and local governments will not have to pay higher rates for construction money during the next few months.

This autumn's heavy schedule of corporate and municipal financing got off to a surprisingly good start last week, pointing to a continuation of high-level construction activity. The market readily absorbed what will probably be the largest volume of bonds it will be offered in any one week for the rest of the year.

More than $400 million of new corporate and municipal securities—much of which will be used to finance construction—were successfully distributed to investors.

This indicates a strong bond market. For investors were under no great compulsion to buy the bonds offered last week. They were well aware that many more new securities will be available as the autumn goes on. This week, for instance, the Public Housing Administration offered $125 million of tax-exempt bonds guaranteed by the U. S. Other big offerings on the way include a $200-million issue by Massachusetts Turnpike Authority and $130 million by the New Jersey Turnpike Authority.

• **Subtle change**—What has happened is that there has been a subtle change in the atmosphere. Investors have been holding off all summer, expecting that the big volume of bond issues coming out this autumn would drive bond prices down and that they would thus be able to buy bonds at higher interest yields. (Bond prices move inversely to yields.) Now they are beginning to doubt that bond prices will go down after all, so they have come into the market.

• **Business uncertainty**—What has changed their minds? The main force is business uncertainty about a possible recession coming along in 1954. It may sound strange, but pessimism about business prospects has a good psychological effect on bond prices. Here's the reason: If a recesssion comes along, corporations will borrow less. That means fewer new corporate bonds will be on the market later, so investors are more eager to buy the new issues available now.

There are a couple of other reasons for the bond market rally. So far, the usual seasonal climb in bank loans to business has been less than usual. That makes banks a litle more interested in short-term municipal securities.

• **FRB steps in**—Furthermore, the Federal Reserve Board has been easing money again by buying government securities in the open market. During the week ended Sept. 16, a week when quarterly tax payments were due, it bought $50 million worth of Treasury bills. There have been rumors around Wall Street that FRB is planning something rather dramatic in the way of easing money: perhaps another cut in the required reserves that commercial banks must keep with the Federal Reserve Banks, perhaps a cut in the discount rate. All this has resulted in higher prices for government bonds.

Still another reason for the strong bond market, although perhaps not an important one, is the recent decline in the stock market (page 72). Undoubtedly this recently has steered some money into bonds that otherwise would have been invested in stocks.

• **Brief hesitation**—All these things help to explain why last week, after a day of hesitation, investors came in and bought up most of the bonds offered. By the end of the week, some issues which looked as if they had been overpriced were beginning to sell, and market prices of other brand-new issues had risen above the offering price.

According to some Wall Streeters, the good reception given to the New York Thruway's $125-million issue of state-guaranteed bonds had a lot to do with making up investors' minds that they had better stop waiting for higher yields, and buy now. The Thruway issue is the biggest state or municipal offering since the $150-million Garden State Parkway issue in July (ENR July 23, p. 78).

The Thruway Authority sold its bonds to underwriters at a borrowing cost of about 2.70%, only slightly higher than the 2.64% interest cost when it sold a similar issue last May. Since then, of course, money has become more expensive to borrow. The Dow-Jones Municipal Index, for instance, was 2.71% at the time of the May issue; and it was 2.84% last week.

Defense construction posts filled

ENR photo by Compton
Admiral Jelley

Rear Adm. Joseph F. Jelley, Chief of the Navy's Bureau of Yards and Docks, last week was named director of construction for the Defense Department under Franklin G. Floete, the Assistant Secretary who determines overall policies on real property and installations for all three armed services. Jelley will handle the construction responsibilities outlined in Floete's charter (ENR, Aug. 27, p. 21).

Jelley's appointment was the second step in top staffing of Floete's office. A director for real property management had started work in the office the first of the week. He is Ira D. Beynon, Lincoln, Neb., attorney long known to Floete. Beynon has been active in housing, finance, manufacturing and public utilities.

With selection of a third director,

for maintenance—expected before the end of the month—the Assistant Secretary's top-level policy-forming organization will be complete and ready to function. Only after the four-man policy team talks things over will Floete set the guide lines and goals for his office and its three divisions. He expects the directors to supply some solid chunks of basic planning for the total activity as well as for their separate programs.

• **Unexpected appointment**—Jelley's appointment came as a surprise. Almost without exception, people had expected Floete to bring in a man from private business for the job.

But construction executives of the desired capacity and energy are hard to pry loose from their business posts. And Floete wanted an active construction executive as his director. Jelley, who has just turned 49, was the youngest rear admiral in the Navy when he became chief of the Bureau of Yards and Docks four years ago.

Not so surprising was the universal approval of Jelley's appointment by all three services. The Army Engineers and the Air Force installations people were happy over Floete's choice. They have confidence in his fair-mindedness and sound judgment. In fact, they see a gain for all the services in having a Defense Department director who knows military construction from A to Z.

• **Will become civilian**—Jelley becomes a civilian when he assumes his new post. Floete insists that his staff represent completely the civil control of policy on national defense. That won't be a difficult transition for Jelley. He is ready to step out of uniform into civil life.

Chances are better than even that Jelley could have been reappointed to another four-year term if he had wanted to stay in active Navy service. His new civilian appointment takes effect when he concludes his present term as Chief of the Bureau of Yards and Docks, probably in November. But Floete isn't waiting that long to get Jelley's help. As soon as the admiral returns from a West Coast trip—probably his last as chief of the bureau—he will begin to spend half of each day in the Pentagon starting Sept. 28.

Technically, Jelley's present term does not expire until Feb. 14. But he will have completed four years as chief on Nov. 30. He succeeded Admiral Manning Dec. 1, 1949. Washington observers expect Jelley to retire at the end of November, if not before. Navy Secretary Anderson will cooperate to help Defense Secretary Wilson's team in any way that won't hurt the Navy.

Donald C. McGraw elected president of McGraw-Hill

Donald C. McGraw was elected president of the McGraw-Hill Publishing Co., Inc., of which ENGINEERING NEWS-RECORD is a part, at a meeting of the board of directors last week. He succeeds his brother, the late Curtis W. McGraw.

Mr. McGraw, youngest son of the late James H. McGraw, Sr., founder, has been associated with the company since 1919. He has been a director since 1935, and vice president since 1945. During World War II, he was a consultant to the Publishing and Printing Division of the War Production Board.

A native of Madison, N. J., Mr. McGraw now is a resident of Summit, N. J. He is a graduate of Lawrenceville School and attended Princeton University. During World War I, he served with the U. S. Navy.

Mr. McGraw joined McGraw-Hill in 1919 as a member of the advertising staff of Chemical and Metallurgical Engineering, which has since become Chemical Engineering. Two years later, he transferred to the press-room and composing room. McGraw-Hill then operated its own printing plant. In 1924, he assumed supervision of the operation of the building and of the printshop.

Since 1933, when he was made secretary of the company and put in charge of production and manufacturing, he has been responsible for the handling of all contracts for printing and binding, engraving, and paper supply for the entire McGraw-Hill operation.

ENR photo by Compton

Mr. McGraw in 1945 was named Vice President for Manufacturing and General Services, the position he has held until now. In 1950, he became a director of the McGraw-Hill Book Co., a McGraw-Hill subsidiary, and of the Newton Falls paper mill in which McGraw-Hill has a half-interest.

Conemaugh Dam is flood control milestone

Conemaugh Dam, a key project in the flood protection plan for Pittsburgh and the upper Ohio Valley, was dedicated last Saturday in ceremonies at which Maj. Gen. Samuel D. Sturgis, Chief of Army Engineers and Pennsylvania Gov. John S. Fine were speakers.

Located on the Conemaugh River seven and a half miles above Saltsburg, Pa., the Army Engineer project was begun in 1946. Although cost of the structure was only $9.6 million, total cost of the operation was $46 million (ENR Aug. 7, 1947, p. 64, Oct. 30, 1952, p. 28).

The dam, with its 21-mile-long dry reservoir, necessitated the relocation of 21 miles of double-track Pennsylvania Railroad lines, 11 miles of highway and many miles of utility lines. A population of 3,000 had to be relocated to make way for the reservoir.

Primarily a concrete, gravity-type structure, it has a gate-controlled center spillway and includes a compacted earth embankment terminating in the right abutment. Length of dam is 1,265 ft, maximum height above river bed, 137 ft, maximum width, 128 ft.

Dedication of Conemaugh recalls the disastrous 1936 St. Patrick's Day floods that caused $94 million damage to Pittsburgh and other cities and towns on the Ohio and Allegheny Rivers. Engineers say this and other dams now in operation would have cut 10 ft from the 46-ft flood crest at Pittsburgh. (It also recalls the Johnstown flood of May 31, 1889, which caused the loss of 2,200 lives).

General Sturgis, in his dedication address, noted that tremendous strides have been made since 1936 but that much work remains to be done along the Allegheny, Monongahela and Ohio Rivers and their tributaries.

Savin Construction Corp. of East Hartford, Conn., was contractor for the dam. Railroad and highway relocation work was done by a combine of Hunkin-Conkey Construction Co., Cleveland, Ohio, and Shofner, Gordon and Hinman, Los Angeles. Herman Holmes, Crystal Falls, Mich., was contractor for a 2,660-ft tunnel.

AGC finds road contractors concerned over confusion in toll highway specs

Fall board meeting criticizes government agencies' practice of permitting bid price changes; hails closer AFL ties

Robert H. Dodds
Associate Editor

Concern among road contractors over toll road specifications, described as often being confusing and therefore conducive to needlessly high bids, was brought to light at the mid-year board meeting of the Associated General Contractors of America in Chicago last week.

AGC governing and advisory boards, numbering about 350 members, nominated John MacLeod, president of the Macco Corp, Paramount, Calif., and now AGC vice president, to succeed C. P. Street of McDevitt and Street, Charlotte, N. C. as the organization's new president.

George C. Koss, president of Koss Const. Co., Des Moines, Iowa, was made the official nominee for vice president. Mr. Koss, a paving contractor, has been a leader in AGC highway division affairs for several years. Election of officers will be held in December, with installation of the AGC national convention in Los Angeles next March.

• **Confusion on toll roads**—Difficulties in respect to toll road specifications were disclosed in round table discussions by the highway division.

The confusion arises because many engineering firms doing turnpike work do not use the states' standard highway specifications. Instead, they develop their own. In-state contractors, familiar with the standard specs as well as with the states' interpretations of them, see many chances for misunderstanding in the non-standard documents; hence they add extra contingency amounts to their bid prices.

As a result of these discussions, contractors agreed to urge toll-road authorities to require the use of their states' standard highway specifications.

• **Bad bidding practice**—The meeting also noted an alarming increase in cases where government agencies have allowed low bidders to adjust their prices after the bid canvass, claiming mistakes in their computations. This practice was condemned by a resolution of the boards. Preferred practice in the case of a bona fide mistake is to allow the low bidder to withdraw, and to award the contract to the second low bidder. Governmental cooperation with this objective will be sought.

• **Against non-AFL unions**—AGC's principal means of seeking cooperation with other organizations is the joint cooperative committees, many of which are performing useful work. Along this line is an imminent joint effort with the building trades, AFL, to resist drives by rival unions to take over industrial construction work (ENR Sept. 17, p. 21).

Maintenance workers of unions in various production industries are attempting to prohibit or limit companies in "contracting out" maintenance, repair and other types of construction work. Those unions' hands are strengthened by recurrent AFL work stoppages, which threaten to delay contract projects beyond the time required by the production company. Jurisdictional disputes were cited as a major source of these mutually damaging delays, so still more effective operation of the National Joint Board for Jurisdictional Disputes was urged by the meeting.

JOHN MACLEOD will move up to presidency of AGC.

GEORGE C. KOSS is AGC vice president nominee.

• **Bid-shopping fight**—It was noted that the jurisdictional dispute board is the only place where there is cooperation between the AGC and the mechanical trade groups. Elsewhere the rift is as wide as ever, and the joint cooperative committee is conspicuous by its absence. (AGC had tried to form such a committee with the National Electrical Contractors Assn.) Such committees, it was believed, could iron out differences over the proposed federal law to require general contractors to name subcontractors and their bid amounts (ENR Apr. 23, p. 23). Spokesmen urged in the meantime that contractors try to get their subcontractor friends to oppose the bill, thus counteracting the flood of communications sent to congressmen by subcontractors who support their associations' campaign on behalf of the bill.

As an added illustration of the insidiousness of such bills, it was noted that several states require contractors to name their sub on public work (but not to state the subcontractor amounts). In these states architects tend to specify subcontractor-naming on private work.

• **Safety a keynote**—Throughout the meeting, accident-prevention was stressed. The high point in the subject's treatment came at a luncheon where a panel discussion concluded that safety is the rightful responsibility of the contractor. He should seek labor unions' active cooperation, but he should not allow accident-prevention measures to be a subject for inclusion in the labor agreement. The idea here is that unions could hold such provisions over the contractor's head, "reading the book" to him in ways that would slow the job. It was thought that when unions take the initiative in safety regulations they do it because the contractors are shirking their responsibility.

Total membership is 6,415, a net gain of about 150 since Jan. 1. New members during the period number about 750. According to A. S. MacDonald, Tacoma, Wash., the "drops" this year stemmed partly from the results of wage negotiations. Some were discontented with the outcome and some had by-passed their AGC chapters' bargaining proceedings, making separate agreements with the unions.

FOUR CONSTRUCTION COMPANIES were assigned different sections of heavily damaged Cleveland thoroughfare to rush essential repairs, as city waived bidding.

Engineers probe Cleveland street blast; expert doubts sewer gas to be cause

Cleveland officials have appointed a committee of engineers from Case Institute of Technology to investigate the cause of the underground explosion which tore up about a mile of West 117th Street on Sept. 10, killing one person and injuring 58 others.

Meantime, crews from four construction companies working around-the-clock had taken care of essential utility and street repair work on the busy thoroughfare, which is the dividing line between Cleveland and its western suburb, Lakewood.

Named to the investigating committee were: George E. Barnes, professor of hydraulic and sanitary engineering and head of Case's civil engineering department; Leon W. Weinberger, assistant professor of civil and sanitary engineering, and George W. Blum, associate professor of chemical engineering.

Belief that sewer gas could not build up a force equal to the blast that caused an estimated $5-million damage to the street was expressed by George W. Jones of Pittsburgh, Bureau of Mines specialist in underground gas and chemical explosions. Jones reported he was unable to determine the initial point of the explosion from an examination of the damage. "Usually the damage is worst at points farthest from the origin because shock waves built up as they move out," he said.

Investigators were checking on the possibility of seepage from abandoned natural gas wells in the area and on pollution by dumping of explosive wastes from nearby industrial plants. In response to this theory, a spokesman for East Ohio Gas Co. made the comment: "It was a downhill explosion. Natural gas rises. Fluids go downhill."

Consultants engaged for San Francisco Bay study

Raymond A. Hill, Los Angeles engineer, has been engaged by the California water project authority to head a board of consultants who will keep an eye on studies to determine the feasibility of constructing a salt water barrier or barriers across San Francisco Bay.

The proposed dam would have a threefold objective of stopping salt water intrusion inland, of creating a new source of fresh water for the fast developing Bay region and of providing a route for additional traffic arteries. (ENR July 2, p. 25).

Hill will join with authority members in selecting the other members of the board. The Legislature recently authorized $500,000 for the investigations by state engineers under direction of the water authority. The board will report to the authority.

Hill, a graduate of the University of Michigan, began his career as an engineering assistant with the U. S. Reclamation Service in 1914. After serving in the Corps of Engineers in World War I, he joined the civil engineering firm of Quinton, Code and Hill.

Flood control pact

Four states are involved in Connecticut Valley plan

A four-state Connecticut River Valley flood control compact is now in effect, providing a formula by which Vermont and New Hampshire communities will be reimbursed by Massachusetts and Connecticut for loss of tax revenue for land withdrawn for planned Army Engineer projects.

The pact, signed recently by a 12-man commission representing the four states, already has been approved by Congress and the state legislatures.

Long-existing Connecticut Valley flood control plans are designed to assure adequate storage capacity for impounding the waters of the river and its tributaries by a comprehensive system of protective works, dams and reservoirs.

Army Engineer plans list proposed dams at West Townsend, Ball Mountain, North Hartland, Grotton Pond, Victory and Bloomfield in Vermont; South Keene, Walpole, Bethlehem, Franconia and Swiftwater in New Hampshire; and Barre Falls in Massachusetts.

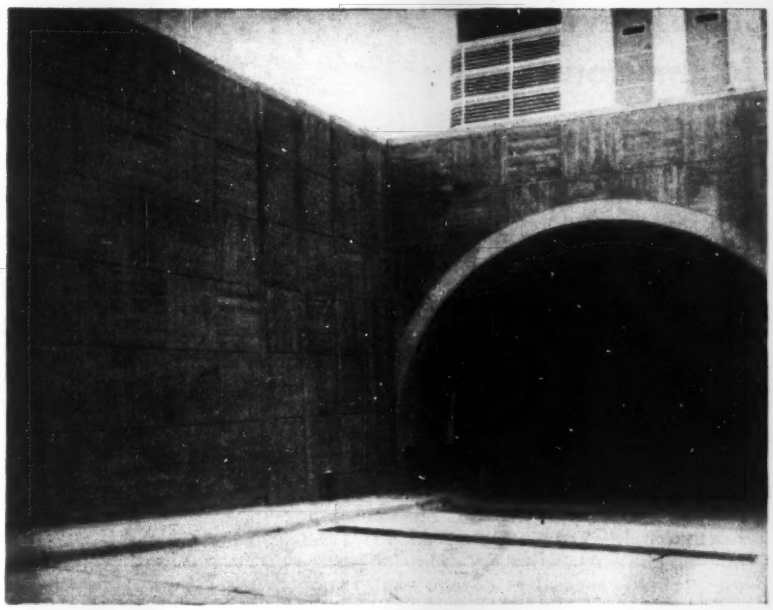
Under terms of the compact, Connecticut and Massachusetts, chief beneficiaries of the planned protective works, will reimburse communities in the other two states, for 40% and 50%, respectively, of the tax revenue loss sustained on land taken for reservoirs. The other 10% will be made up by the two states where the proposed dam sites are located.

Three Alaska highway routes to be surveyed

The Alaska Road Commission expects to begin a series of highway surveys this winter to improve communications for the three southeastern cities of Juneau, Wrangell and Ketchikan, which are supplied at present only from the sea.

Routes will be sought by the commission from the three cities to a proposed Canadian highway, which would connect with an existing road near Hazelton, B.C. The proposed highway would be far to the west of the Alcan Highway and thus offer a more direct route to such coastal cities as Seattle, now Alaska's principal supplier.

The commission, which has $250,000 available for surveys, also plans to study proposed routes from Juneau and Haines to Skagway. It is now surveying an 18-mi. route from Skagway to the Canadian border that would link Skagway with the Alcan highway.



GOOD LIGHTING is a Baytown Tunnel feature. Six bands of high-intensity fluorescent tubes illuminate 300 ft of tunnel inward from each portal. Two do the job the rest of the way through the $8.6-million underpass.

Baytown Tunnel is opened to traffic

Second sunken-tube tunnel in Housto. Galveston area is first application of single-shell design

Ceremonies this week marked the opening of the $8.6-million Baytown Tunnel, which underpasses the Houston Ship Channel near its outlet to Galveston Bay, between Baytown and LaPorte, Tex. Connecting two busy industrial and residential areas, the 3,000-ft sunken-tube-type tunnel eliminates a commuters' Hobson's choice: use of an inadequate ferry service or a 40-mi detour.

Construction began four years ago. The tube sections, described in ENGINEERING NEWS-RECORD, May 19, 1949, p. 23, are the first to be fabricated with a single steel shell. Reinforced concrete 30 in. thick was placed inside the cylindrical shell, becoming the principal structural material as well as the tunnel lining. Movable steel forms were used inside. In most other sunken-tube tunnels an outer octagonal steel sheath acts as the second forming surface for structural concrete. Movable interior forms also are required, for concrete lining. Examples of double-steel tubes are the Elizabeth River Tunnel at Portsmouth, Va. (ENR Nov. 16, 1950, p. 44) and Washburn Tunnel, which goes under the ship channel 20 mi inland from Baytown Tunnel (ENR June 8, 1950, p. 32).

In size and general description Baytown Tunnel is quite similar to Washburn. The latter's length is 2,936 ft—shorter than Baytown Tunnel. Each is a single tube, with two-lane roadway. Baytown's sunken-tube portion, however, is 2,558 ft long, whereas Washburn's is 1,500 ft, the remainder in each case consisting of cut and cover arch sections. There are 550-ft open-cut approach ramps at each end of the Baytown Tunnel.

Maximum grade on the approach ramps is 5.83%, and they extend to el. 19, 4 ft above the maximum hurricane tide of record. On their up-going lanes they widen to 23 ft, to allow heavy vehicles to pull out of the way of faster, light vehicles. Four-lane approach roads on marshlands and shallow water were built of hydraulic fill taken from the trench in which tunnel tubes were placed. At its lowest point the tunnel is 85 ft below low water. Over-all diameter of 35 ft leaves 5 ft of cover if the ultimately-planned 40-ft channel is over-dredged 5 ft. Present channel depth is 32 ft; its width is 400 ft.

• **Lighting is noteworthy**—Illumination in Baytown Tunnel is claimed to be unusually high; a twin band of fluorescent tubes running along the center of the arch roof gives 5 ft-candles of illumination at roadway level.

Transition from daylight to interior is aided by four additional rows of high-intensity fluorescent lights in the first 300 ft at each end giving a maximum of 30 ft-candles. These lights can be switched on in pairs to provide required daytime, twilight and night-time entrance illumination.

A simple longitudinal ventilation system is used, air from a single blower house at the north portal being forced into an under-roadway plenum. Air reaches the roadway through flues spaced 16 ft apart just above each roadway curb. Vitiated air goes out of the portals. There are three-speed 300,000 cfm blowers in the blower house, one of them a standby because 600,000 cfm is estimated as the maximum air requirement. Carbon-monoxide-detecting apparatus continuously monitors the ventilation, which an operator controls.

Sumps and pumping equipment are designed to handle a continuous rainfall of 4 in. per hour and a 10-minute downpour at the rate of 8 in. per hour.

Owner is the Texas State Highway Department. Parsons, Brinckerhoff, Hall and Macdonald, New York, designed the tunnel, and the contractors were Brown and Root, Houston, (sunken-tube portion) and Farnsworth and Chambers, Houston (remainder of work). Consolidated Western Steel Co., Orange, Tex., fabricated the tubes.

Cooperative housing financing committed

The Federal National Mortgage Assn. has authorized its agency offices to issue advance commitments amounting to $25.4 million for the purchase of cooperative housing mortgages, according to administrator Albert M. Cole of the Housing and Home Finance Agency. These commitments will finance over 2,900 units.

Applications in excess of $48 million were received. But the accepted $25.4 million—together with about $4.5 million outstanding under previous legislation—will increase the commitments to approximately the $30-million mark, which is the limit that may be outstanding at any one time.

Some of the larger projects covered by these new commitments are: University Gardens in New Haven, Conn., 116 units; Indian Trail Corp., Louisville, Ky., Community Homes, 101 units; Underwood Properties, Omaha, Neb., 131 units; Bay Terrace Coop, Bayside, N. Y., 200 units; Belmar Gardens, Pittsburgh, Pa., Riviera Apartments, 118 units.

Tescolote tunnel, Missouri diversion pose problems for Reclamation Bureau

The Bureau of Reclamation last week had separate boards of consulting engineers investigating knotty problems that have arisen on two of its big projects—the Tescolote tunnel of the Cachuma project in California and the Missouri River diversion in Montana.

In the Tescolote tunnel that is already supplying some water to Santa Barbara, the contractor has run into a condition that involves both hot water and fissured rock. The combination is more than they can carry under their bid prices, according to the Carl M. & H. Halvorsen companies. They have asked that these difficulties be ruled as constituting a "changed condition," under their contract.

After driving all but 4,700 ft of the 6½-mi, 7-ft bore, the contractors ran into a combination of deteriorating, fissured rock and hot water under pressure, flowing as much as 3,700 gpm. and raising the temperature inside the tunnel to 112 deg F. Heat and high humidity have created almost impossible working conditions.

A three-man consulting board is investigating the conditions and will make recommendations to Leslie N. McClellan, chief engineer of the bureau in Denver, who in turn will confer with Reclamation Commissioner Wilbur A. Dexheimer.

On the Tescolote tunnel board are: Rush T. Sill, engineering partner of the Ruscardon engineering firm in Los Angeles; Frank Purvis, tunnel superintendent of the Magoffin Construction Co., Denver, and Walter R. Young, president of Thompson Pipe & Steel Co., Denver, and former chief engineer of the Bureau of Reclamation.

• **Pumping vs. dam**—Economics rather than construction hazards is the crux of the problem in Montana. There, a three-man consulting board is to tell the bureau whether a pumping plant or a diversion dam will be more economical for raising Missouri River water into a canal system that will carry irrigation water to 100,000 acres of land. Interior Secretary Douglas McKay named the board—in line with a recommendation from the Senate Appropriations Committee—to advise him on the engineering feasibility of using pumps instead of a dam that would supply most of the land by gravity flow. The House Appropriations Committee previously had come out in favor of pumps.

The original bureau plan called for a dam and a 62-mi gravity flow canal, with an 18,000-kw hydro plant at the dam, costing, in all, about $64 million. Members of the consulting board—which met at Bismarck, N. D., earlier this month to begin their study of the pumping proposal—are: John S. Longwell, consulting engineer of Piedmont, Calif.; Ralph Lowry of San Mateo, Calif., former chief construction engineer of the bureau, and William F. Uhl, president of Charles T. Main, Inc., engineering consultants of Boston, Mass.

W. Va. highway personnel problem termed critical in consultant's report

The West Virginia State Road Commission is suffering from "a serious lack of trained technical personnel, particularly younger engineers," according to a special progress report made by a consultant now studying the state highway agency's operations.

Thomas P. Jacobi, project supervisor for Public Administrative Service, outlined the commission's engineering personnel problem in a supplement to a regular progress report submitted by PAS to an interim state legislative committee on highway studies.

The legislative committee is also employing the services of the Automotive Safety Foundation to study the state's highway needs, and received preliminary findings from its project manager, Lawrence Tuttle.

Although detailed recommendations won't be ready for some time, "it was believed by our staff that the situation in regard to engineering personnel was sufficiently critical to require a brief but immediate presentation of our findings," declared Jacobi.

Among his findings were these:

(1) "The number of graduate engineers (35) is completely insufficient to man an organization of the size and importance of the State Road Commission."

(2) Half the engineers employed by the commission are over 55 years old. There are very few engineers in the 20-40 age bracket. "Consequently, replacements are not being trained to fill responsible positions which will be vacated in increasing numbers in the next five years."

(3) "Inadequate salaries and lack of employment security are the two major problems in the enlistment of a staff of well-trained engineers."

Jacobi noted that professional salaries in the West Virginia commission in general compare unfavorably with those in neighboring Maryland, Ohio, Pennsylvania, Virginia and Kentucky.

On the matter of job security, he said that in West Virginia "party affiliation has not been a major obstacle in the employment of engineers and technicians in recent years." Nevertheless, Jacobi observed, it is a common impression among young graduate engineers "that employment and tenure are closely related to proper political following and activity."

Establishment of a personnel system based on merit principles was advanced by Jacobi as the "only practicable measure that will overcome this major barrier in recruitment."

Administrative organization would improve the commission's operations considerably, Jacobi contended. He said, for example, that the road commissioner is overburdened by the necessity of acting both as chief administrative officer and chief engineer.

Reclamation's Region II. reorganization completed

Reorganization of the Bureau of Reclamation's former Region II, office in Sacramento, Calif., has been completed by Clyde H. Spencer, former construction engineer in charge of the bureau's Hungry Horse Dam project in Montana.

Spencer, appointed to succeed Richard L. Boke, abolished several district offices and effected a consolidation of functions. One important change was elimination of five major divisions, including the power branch headed by Oliver Rands.

Martin H. Blote, formerly superintendent of the Central Valley Project, has been put in charge of the operation and maintenance division. The power branch was absorbed by this division.

A. Norman Murray was appointed by Spencer to head the planning division; William J. McCrystle was named chief of the engineering and construction division.

Robert S. Calland, who was assistant regional director, has become assistant supervising engineer under Spencer, who bears the title of supervising engineer, California Projects Office.

Spencer took over July 1 with orders from Secretary of the Interior Douglas McKay to slash the payroll to 1,675. This meant eliminating 175 jobs by Sept. 1. Earlier approximately 300 were dropped.

AFL looks to jurisdictional answer

Convention acts to strengthen hand of individual officers and locals to settle inter-union fights

"There is scarcely an affiliated organization (of the AFL) which is not engaged in a dispute with another organization upon the question of trade jurisdiction."

That's what Samuel Gompers had to say about jurisdictional disputes at the opening of a convention of the American Federation of Labor. He said it half a century ago.

This week, at another convention, in St. Louis, Mo., the AFL appeared to be getting around to doing something definite about ending the internecine squabbles which have reduced many a contractor and buyer of construction to whimpering, futile rage.

The AFL, at its 72nd gathering, showed a wholesome willingness to grapple with the problem. Nobody expected the difficulties which divide the house of labor to vanish instantly, but most observers were hopeful—even convinced—that this time there was more than just talk.

For one thing, the Building and Construction Trades Department of the AFL, headed by Richard Gray—and prodded by Joseph Keenan to whom "jurisdictional dispute" is a dirty phrase—has offered the convention a solid plan to end intra-AFL work-assignment and representation turmoil.

• **An umpire, sort of**—George Meany, AFL chieftain, instead of submitting his own plan for effecting jurisdictional peace, cleared the way for Gray's program to go directly to the convention floor.

Heart of the building tradesmen's plan, which appeared likely to be adopted by the convention, was a proposal for the appointment of a jurisdictional adjudicator—a strong man—to decide disputes on the basis of assembled jurisdictional data (ENR Sept 17, p. 21).

Possible flaw in the program, according to some labor leaders, was a provision for appeal of the adjudicator's decisions to the executive council of the AFL, or to the AFL convention. William Schnitz, the federation's secretary-treasurer, proposed that a five-man court be set up to handle jurisdictional disputes—with no appeal procedure.

Adoption of Gray's program might mean the downfall of the National Joint Board for the Settlement of Jurisdictional Disputes, which in recent years has been unpopular with specialty contractors. Many building trades leaders would be happy to see the disputes board—which has employer representatives—bypassed in favor of a plan which would keep work assignment a problem for labor to settle.

Conviction that a sincere attempt would be made to find equitable machinery for settling work assignment fights was strengthened by the knowledge that this was a major condition under which the carpenters agreed to return to the AFL fold after their short period of sulking (ENR Sept. 17, p. 21).

• **A Hutcheson on board**—It was assumed that either William L. Hutcheson, 70-year-old president emeritus of the carpenters, or his son, Maurice, new president of the union, would be named by the convention to one of the two new seats on the executive council. Al Hayes, head of the International Association of Machinists, was prospective nominee for the other seat.

Adding Hayes and either of the Hutchesons to the council would be a final damper on rumors that the carpenters and machinists might join the teamsters—whose leader, Dave Beck was moved up to the council table to fill the carpenters' vacancy—in setting up a third big labor group with John L. Lewis and his miners.

Whatever the AFL does in its search for internal peace—and a raiding armistice with the Congress of Industrial Organizations the Gray plan was, as one building union veteran put it, the first concrete proposal of its type ever placed before AFL leaders.

• **Jurisdiction**—If further evidence were needed of preoccupation of this year's AFL convention with jurisdictional disputes, it could be found in the fact that Gray devoted nearly all of the Building Trades Department's annual report to detailed arguments and a plea for jurisdictional harmony. And George Meany, in his opening speech to the convention Monday morning, was strong in his condemnation of both inter-union raiding and jurisdictional fighting.

Most observers viewed it as more than coincidence that AFL leaders were so insistent that a minimum of union strength be spent in a family battle in a year when the whole labor movement is drawing together to fight for changes in the Taft-Hartley law.

Defy strike pledge

Joppa steam plant shuts down despite wrath of AFL

Three dozen men clustered around a big wooden keg of cool water standing in the weeds beside a dusty road in southern Illinois last weekend. There was nothing to indicate they were concerned that they had brought down the wrath of the nineteen biggest leaders of the American Federation of Labor's construction unions.

Nor did they appear disturbed that while they rested in the grass no building tradesmen would pass them to work on the big steam power plant at Joppa Ill., being built to supply power to the Atomic Energy Commission's factory at Paducah, Ky.

The 36 men were ironworkers who quit their jobs at Joppa when their employer, Bechtel Corp. (ENR Aug. 13, p. 21), attempted to hire six handpicked ironworkers last week.

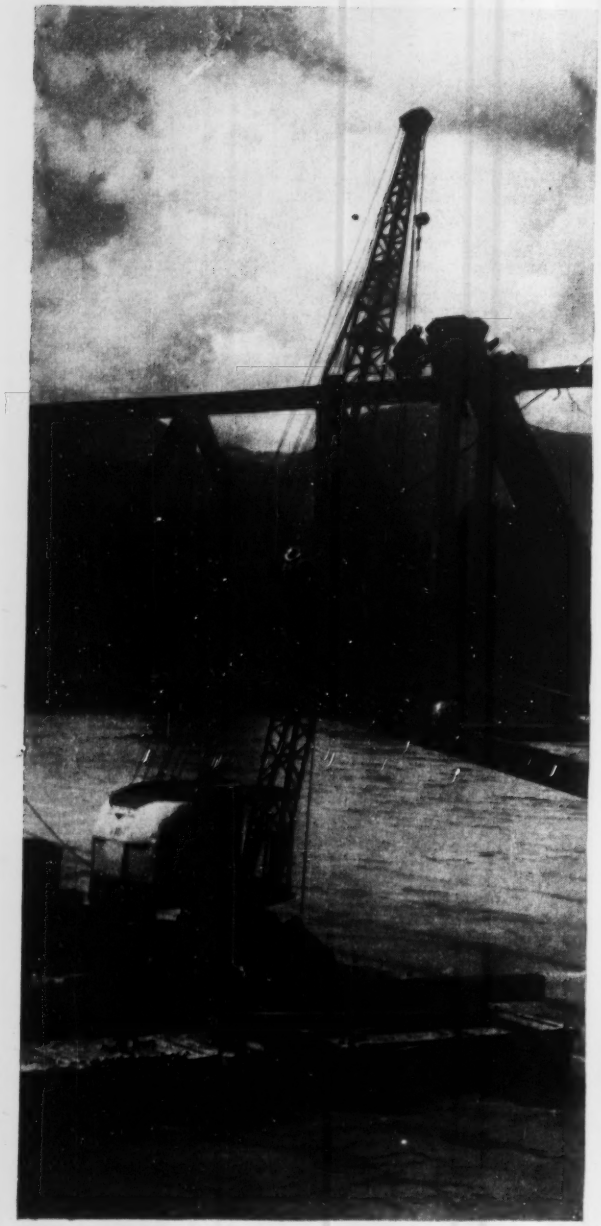
The Paducah ironworkers local charged that Bechtel was bringing in out-of-area workers; Bechtel insisted the men had been employed in the area. At any rate, the Joppa project was closed down—for the sixtieth time—even before Bechtel had had a chance to assemble a full work force.

In St. Louis, top men in the AFL building trades unions took time off from their convention to crack down on the ironworkers—and other locals in the Joppa-Paducah area. They served notice they were "sick and tired" of stoppages in violation of recent no-strike agreements and disputes-settling pacts.

Reaction was swift. Monday the ironworkers were not alone around the water keg. Their blockade—which they insisted was not a picket line since they had quit their jobs—was joined by nearly a thousand ironworkers who had taken the day off from work at the Paducah plant and the Shawnee, Ill., TVA power plant.

Formation of a new local at Joppa—at the behest of ironworkers international leaders—to freeze out the Paducah ironworkers appeared likely.

With one side span erected, crane sets lower chord of second:



TRUCK CRANE on cellular-pontoon barge anchored in swift Kootenai placed members. Lines from temporary tower on pier held trusses for erection.

Private bridge across Kootenai will carry heavy log hauls

J. Neils Lumber Co., Libby, Mont. built this one-lane bridge across Montana's Kootenai River to carry 100-ton truck-trailer loads. Designed by George Neils of the logging company and Charles Woodworth of Timber Structures, Inc., Portland, Ore., the bridge has a center cantilevered span of 155 ft and two side spans of 152 ft. Piers previously had supported a railroad bridge.

Spans were erected by Bair Co., Spokane, with the aid of a barge-mounted truck crane, the side-truss members being supported by diagonal suspension lines from temporary timber towers atop the inshore piers. Center-span erection was by straight cantilever methods, proceeding from the two piers outward to closure.

Glued laminated timber members, including floor beams, were treated with oil and creosote after fabrication. Gusset and shear plates eliminate angle-to-grain bearing action. Metal hardware is galvanized.

Engineering, fabrication and erection took six months

CROSS-BRACING of steel rods is part of design to carry 100-ton trucks. Floor beams, chords and web compression members are glued laminated timbers.

Moving Day for the St. Lawrence

Shaded area shows additional facilities which will increase Beauharnois' production to more than 1,400,000 h.p.

MOVING A RIVER may sound fantastic, but the Ellicott-designed "Hydro-Quebec," world's largest hydraulic pipe line dredge, has begun work on a project that will eventually divert practically the entire flow of the St. Lawrence River! The project is part of the expansion program of the Quebec Hydro-Electric Commission. When completed, the Commission's installation at Beauharnois, Quebec, will be the largest single-site hydro-electric plant in the world, with electrical output of more than two million horsepower.

Main work of the "Hydro-Quebec" consists of widening and deepening the 15-mile Beauharnois Canal to provide the necessary volume of water to operate the plant. This channel will also serve as a navigation canal which, when tied in with the proposed St. Lawrence Waterway by locks, will permit passage of ocean going vessels.

* * *

Whether *your* dredging problem is moving rivers or maintaining irrigation canals, or any of a thousand other projects, Ellicott's 67 years of experience in the engineering, design, manufacture, modernization and operation of dredges can help *you*. For more information about Ellicott dredges and dredging services, write for Catalog 825 to: ELLICOTT MACHINE CORPORATION, 1603 Bush Street, Baltimore 30, Md.

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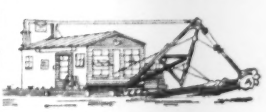
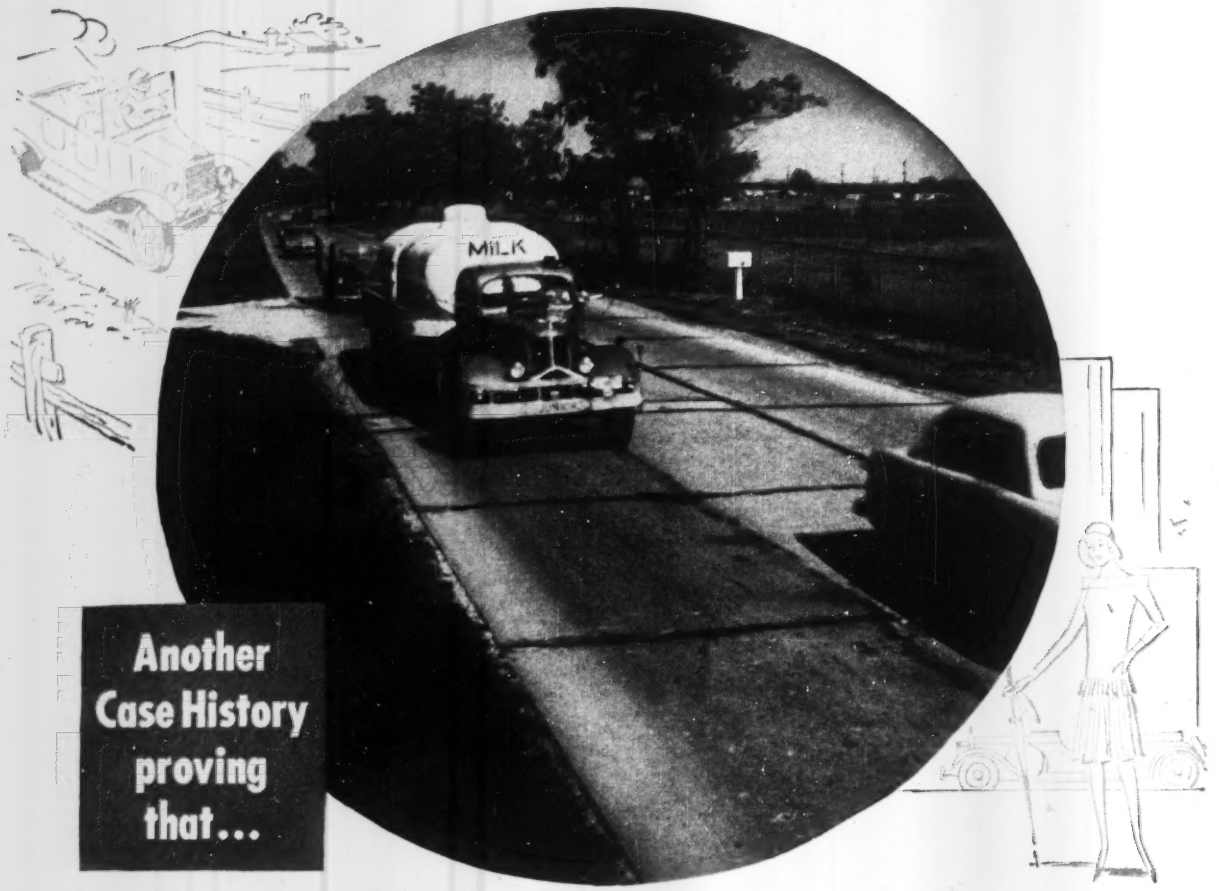


ELLICOTT DREDGES



Another Case History proving that...

Concrete Roads Deliver Unexcelled Service and Economy

This old concrete highway is Higgins Road, Ill. Route 72 near O'Hare Field northwest of Chicago. It was built in 1924 to replace another pavement which had lasted only five years under the comparatively light traffic of that period.

This concrete road now has served more than five times longer than the original pavement. It has rendered this service in the face of tremendous increases in traffic weights and volumes.

In places the road shows the scars of this burden, but in general its condition still is good. Today it is handling a daily average of 4,000 vehicles, 500 of them commercial.

Higgins Road paid for itself long ago. It has required only modest annual maintenance. During its lifetime, though, other types of pavement have been replaced or have eaten deeper and deeper into highway funds for maintenance.

Like Higgins Road, hundreds of miles of concrete pavement all over the country have served beyond their life expectancies and are carrying well over design loads. Some are resurfaced but it's still the concrete that's carrying the load.

Such performances demonstrate the durability and ***low annual cost*** of concrete—and what a wise investment it was.

Improved design, materials and construction methods make concrete an even sounder investment today.

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+ low maintenance
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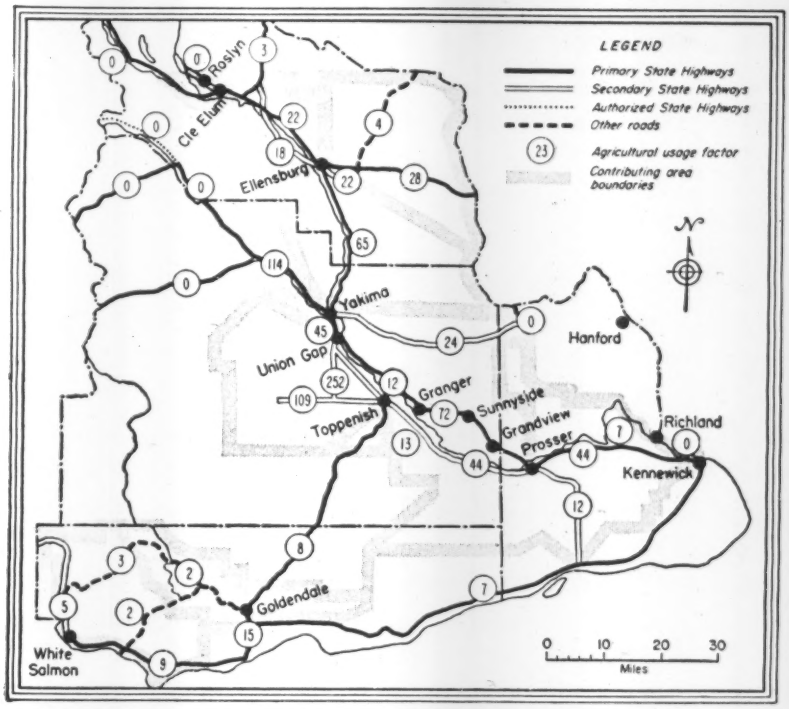


AGRICULTURAL USE FACTORS for the highways in three counties here shown are indicated by the numerals in circles. Low factors indicate barren or forested areas. Only 40% of the land in Washington is farmed.

How to measure state interest in agricultural roads

Use factors developed as basis for determining what roads should be in the state-financed system

G. A. Riedesel
Highway Research Engineer
State College of Washington
Pullman, Wash.

A perplexing problem facing highway administrators and legislators is that of determining what roads should be financed and administered by the state government rather than by a local government agency. The State of Washington has attempted to develop a scientific way to answer that question by defining and measuring state interest in its highways.

It is believed that this approach to highway classification—this numerical evaluation of state interest for each highway, is original with the Washington state legislature. The "Weighted State Index" is expected to be the controlling factor in future legislation dealing with changes in the Washington state highway system.

• **State interest is defined** as that share of the highway use that is of benefit to the state as a whole rather than of major benefit to counties or local communities.

Intercity travel use was measured in terms of population of cities and distances between them. Commercial freight traffic over highways was evaluated in terms of ton miles hauled by commercial carriers over each trunk road. Logging use was expressed as the average number of million boardfeet of lumber hauled annually on a sustained yield basis. Mining use was determined from pay rolls of mining operations. Agricultural use was measured by the average value of crops produced annually in the area served by each highway.

Each of these use values (or factors) was then converted to a percentile of the mean maximum value (the average of the highest values of that factor to be found on any 100 miles of highway). The percentiles for each section of highway were then weighted to represent their proper importance in the state economy and to overall highway use and added together to obtain a State Interest Index.

• **Agricultural use**—As an example of how each type of use was determined and measured, agricultural use has been selected. The treatment of other uses was similar.

The state has an interest in any highway which serves agriculture because agriculture contributes to the overall economic welfare of the state and agricultural areas need highway connections for inter-regional travel. The state benefits when an industry is benefited.

For this study of the agricultural effects on highway classification, the extent of state interest in a road was measured in terms of the value of crops produced annually in the area served by the road. This is not the same as a measure of agricultural hauling over the road since a hundred dollars worth of butter does not create as much traffic as a hundred dollars worth of hay. Volume of traffic governs the need for the road but does not measure state interest in the road. State interest embraces all social, recreational, and economic uses of the road by the farm people, not just the hauling of crops to market. Therefore, the importance of the road and the crops to the state is more closely related to value than to weight or bulk.

To determine directly the total value of crops produced in any one year or in a typical year in any area is an undertaking entirely too costly and time consuming for the purpose of this study, so the following indirect method was used. First, crop values per acre of farm land for all the significant crops in each county, as given in the U. S. Agricultural Census, were studied. Average values for the years, 1940, 1945, and 1950 were computed. These were then grouped into from one to six groups or classes, covering the range between the lowest value per acre to the highest value per acre in each county.

Because of the wide variation in farm crops and farming conditions in Washington, these values varied from a few dollars per acre for the marginal, semi-arid land to several hundred dollars per acre for the intensely cultivated fruit and truck farms. Each of these group values per acre was then divided by five for convenience, and rounded off to whole integers to be used as crop-value or productivity coefficients for different classes of land.

The next step in the process was to outline on a large-scale map the particular farming area served directly by each road under study. The land assigned to each road was called its "contributing area".

Land in the contributing area was

STATE INTEREST in this highway's agricultural service is high because the apple orchards it serves are an important element in the state economy.

classified to correspond to the crop-value coefficients. The area, in square miles, of each class of land, was determined. The number of square miles of each class was multiplied by the corresponding crop-value coefficient and the summation of these products for the contributing area was determined.

This summation was called "total productivity value" for the road. Since the crop value per acre was divided by five and since this value per acre was multiplied by the area in square miles (not acres) the total productivity figure is only 1/5 of 1/640 or 1/3200 of the value of crops produced in the area.

Finally the total productivity figure for the contributing area was divided by the length of the road in miles for the Agricultural Usage Factor. This recognized intensity of state interest as well as total quantity.

The classification of farm land in the contributing area was done with the help of "Economic Land Use Classification Maps" and "Land Use Capability Maps" which had been prepared at the State College of Washington. Soil, climate, water supply, transportation facilities, and proximity to market were all considered in determining land productivity values.

The selection of the exact contributing area for each road required some rather arbitrary rules and assumptions. No land was considered to contribute to more than one road under study. Therefore, no land was assigned to more than one road. The dividing line between contributing areas was governed by topography, traffic attraction centers, and the location and quality of local roads. When one road is a branch or tributary of another, the total productivity value of the first was added to that of the second. For rating purposes long continuous highways were divided into sections with similar agricultural characteristics.

Thus each highway or section of highway studied was given a numerical value of agricultural use which placed it relatively either above or below all other highways studied. The accompanying map (Census Bureau Economic Area 6) shows the roads studied in four counties in southern Washington and gives the numerical value of the Agricultural Usage Factor for each road. It shows also the boundaries of the contributing area for each road.

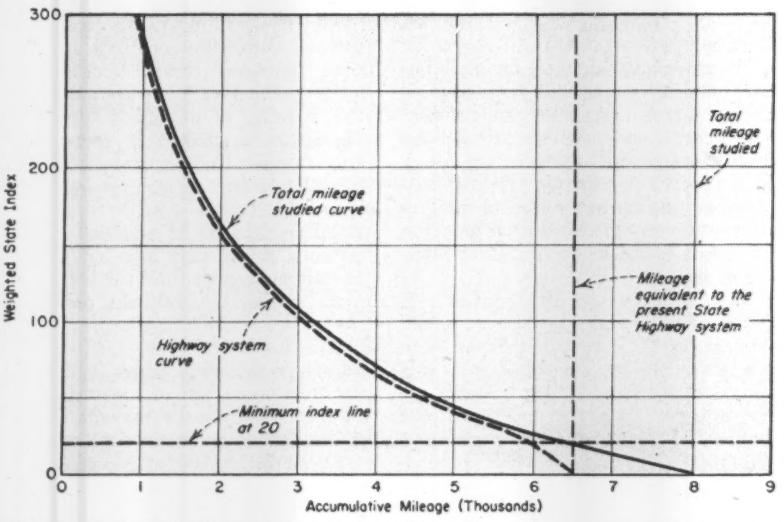
The Agricultural Usage Factors were converted into percentiles of the mean maximum value of all agricultural factors. This was the average of the highest value found on any 100 miles of highways. These percentiles and the percentiles of the other five use factors were then weighted, as noted, to obtain a "State Interest Index."

• **Weighted State Index**—An accompanying graph captioned "Weighted State Index" shows the total mileage of state and county highways with state index values equal to or above specific values—ranging from 350 to zero.

According to this graph there are approximately 6,500 miles of state and county highways whose index is equal to, or more than, 20. That mileage is the equivalent of the present highway system, but not all state highways rate that high. There are about 560 miles of state highway below 20 and consequently the same mileage of county roads that are rated above 20.

The state highway system is considered adequate for the present needs of the state and appropriate for its present financing setup. Therefore, if this mileage is to be maintained on a minimum state-interest-index basis, it would be desirable to replace 560 miles of highways of low state interest, now on the state system, with the equivalent mileage of country roads with high state interest.

For those interested in more details of this method of highway classification, there is now available a two-volume report entitled "State Interest in Highways." Copies may be obtained from the Washington State Council for Highway Research, State College of Washington, Pullman, Wash.—EDITORS.



WEIGHTED STATE INDEX. Of the 8,000 miles of state and county highways studied, 6,500 miles have a state-interest index of 20 or above.

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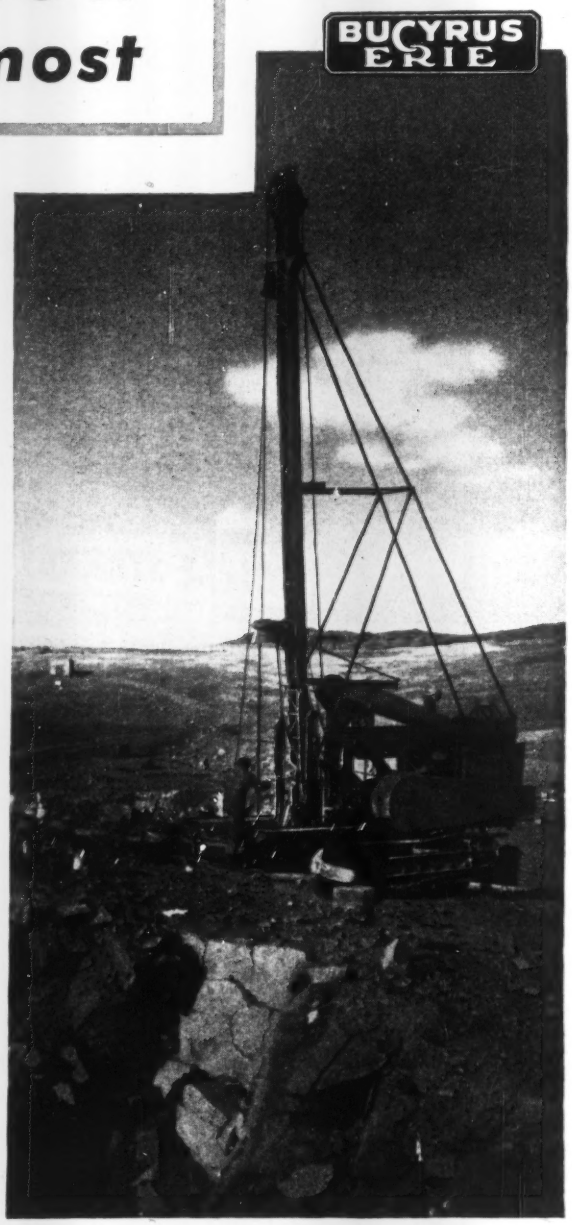

Bucyrus-Erie blast hole drills have a nation-wide record for ramming holes down fast—and cheap. A brief rundown shows why—

Big 5⅝ to 12-in. holes—quick— The right balance of tool travel distance, tool weight, and blows per minute — combined with an unmatched rock shattering snap at the impact point — put these rigs "holes ahead" in penetration speed.

Quick moves — Long, sure-footed crawlers mean fast, easy rolling over rough ground — positive traction up 30 percent grades.

Rapid set-ups — Hydraulic leveling jacks (standard on 50-T; optional on 29-T) eliminate elaborate ground preparations, blocking and cribbing. Built-in stabilizing jacks (on the 22-T, 27-T and 29-T machines) provide time-saving 3-point setups even under adverse ground conditions.

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For fast, profitable operation standardize on big hole, fast hole Bucyrus-Erie drills. Four models—5⅝ to 12-in. hole capacities.

5853

BUCYRUS-ERIE COMPANY

South Milwaukee, Wisconsin

MECHANICAL METHOD—Workman in form sled feeds aluminum-sheet forms into trench. Concrete is poured into hopper on sled. Spading device places it and vibrator compacts it.

HAND METHOD—30-in. dia lap-joint metal forms are placed for upper arc of monolithic pipe on previously cast lower arc. Other men cast concrete, using wheelbarrow and spade.

Monolithic pipe for irrigation water

L. H. Kristof
Civil Engineer
U. S. Bureau of Reclamation
Sacramento, Calif.

Four significant advantages over open canals have marked the continued use of unreinforced monolithic concrete pipe for farm delivery service in several California irrigation districts.

Monolithic pipe has been employed for many years; principally by the Modesto and Turlock Irrigation districts in the San Joaquin Valley, and particularly when construction cost has been equal to or less than concrete-lined canals. Turlock District now has more than 200 miles of this pipe. Other private water user agencies have also started to use it.

The advantages of monolithic pipe stem from the fact it is enclosed and underground. The pipe cannot be fouled by windblown trash; if proper flow velocities are maintained, no silt or sand deposits will occur; the interior concrete surface remains free from vegetation growth; cracking is minimized because the backfill of 18 to 24 in. prevents sudden or wide variations in temperature; the entire right-of-way can be cultivated. Costly bank weed growth is eliminated.

Irrigation requirements and economic factors have dictated design. Prevailing soil in the Modesto and Turlock districts, classified as "Fresno sandy loam", requires relatively rapid applications of water for short periods.

Typical pipe is designed to deliver about 15 cfs of water to each user, the average application time being 15 to 20 minutes an acre. The pipe is suitable for only very low heads, usually 5 to 8 ft, sometimes up to 10 ft.

Although diameters ranging from 24 to 48 in. are possible, the 30 and 36-in. sizes are most economical to construct. Limited working space slows production to make cost of smaller sizes almost as great. Larger sizes cost more because of heavier formwork and more difficult construction problems.

Concrete used is generally a six-sack mix with 1½-in. maximum aggregate. Sand and gravel are included in equal proportions. A low water-cement ratio is required to obtain early strength and to facilitate troweling and finishing.

Before acceptance by the irrigation district, pipe is tested for leaks under design head.

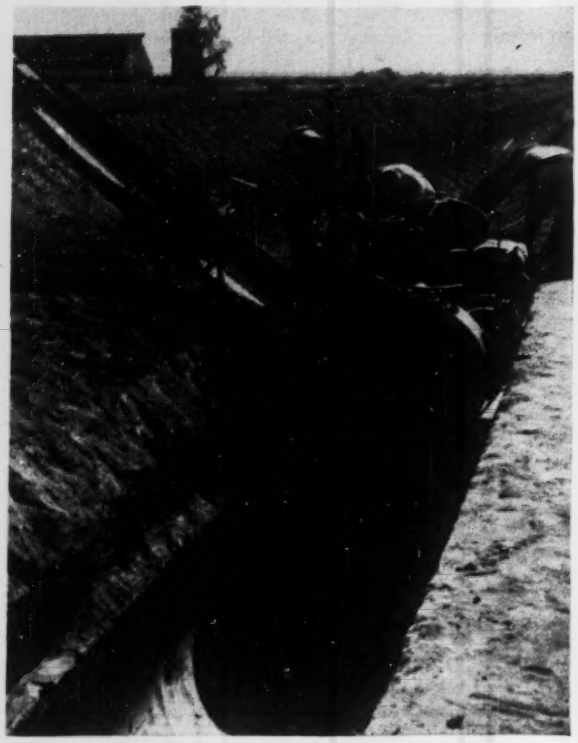
Contractor guarantees against leaks for one year.

Competition among numerous construction firms that have been established to meet the demand for monolithic pipe has kept prices reasonable (see table). Variations in construction methods among contractors generally are minor. Principal method uses mostly hand labor, although one firm, Valley Concrete Pipe and Products Co., uses a "traveling form" rig that involves mechanical placing and compacting.

• **Traveling forms**—The traveling form

COST OF MONOLITHIC PIPE

Inside dia. (in.)	Hand method Wall thickness (in.)	Hand method Avg. 1952 prices (lin. ft.)	Traveling form method Wall thickness (in.)	Traveling form method Avg. 1952 prices (lin. ft.)
24	2½	$1.50-2.00	2½	$2.50-2.75
30	2½-3	1.60-2.25	3	3.00-3.50
36	3-3½	1.90-2.75	3½-4	4.00-4.80
42	4	2.90-3.25	4½	5.35-7.00
48	4-4½	4.50-5.25	5	8.50-12.00



ROTARY TRENCHER prepares trench for 30-in. dia pipe. Digger is cutting semi-circular bottom of trench, after making first pass to dig rough trench.

LOWER ARC IS CAST in hand method by workman rocking "boat" to form and compact concrete. A second man pulls boat forward over fresh concrete.

method, slightly more expensive than hand construction, nevertheless is somewhat faster. The Valley Pipe Co., claims 120 ft per hour capacity for the traveling form. Time required for pulling forms, though, cuts this capacity about in half. The rig must be pulled out of the pipe trench to strip the forms. Daily production for the hand method averages between 200 and 300 ft.

Key piece of equipment in the traveling form method is a steel sled on which is mounted a spading device, hydraulic vibrator, and hydraulic actuated cable drum. A sled-mounted gas engine powers gear mechanism for spading device and also powers the hydraulic pump. Sled is drawn along trench by truck-mounted winch.

The semicircular bottom of the trench is the exterior form for the lower portion of the pipe, about 150 degrees arc. The trench is excavated with either a trenching hoe or a revolving trencher and is finished by hand, using a steel template to check size.

The sled also mounts a section of lower interior form and a section of upper outside form, which leave finished surfaces as the sled progresses along the trench.

Collapsible upper interior forms, in 3 to 4-ft lengths of 20-gage or heavier steel or aluminum sheet, are fed into the trench through the front of the rig and are hooked together as the work progresses. A workman, sitting in the sled places support struts. He also inspects and repairs, if necessary, the lower section.

Concrete can be poured continuously through a hopper on the rig. A concrete finisher, following the sled's progress, woodfloats the exterior if needed, repairs any flaws, cuts holes in the pipe and installs precast risers.

The concrete is allowed to set up overnight. Before the following day's pour, the interior forms are collapsed, positioned for the next pour, unhooked, and lifted onto the bank.

At this time, the pipe is inspected and any necessary repairs made. Another 24 hours is allowed before backfilling.

At the close of a day's pour, concrete at the fresh end is sloped down at a 45-deg angle and left rough. The surface is cleaned before pouring is continued. No water stops are provided at the joint.

• **Hand method**—Two-stage construction is embodied in the hand method. The lower arc is formed and compacted under a semicircular steel "tub" or "boat", equal in diameter to the nominal pipe size.

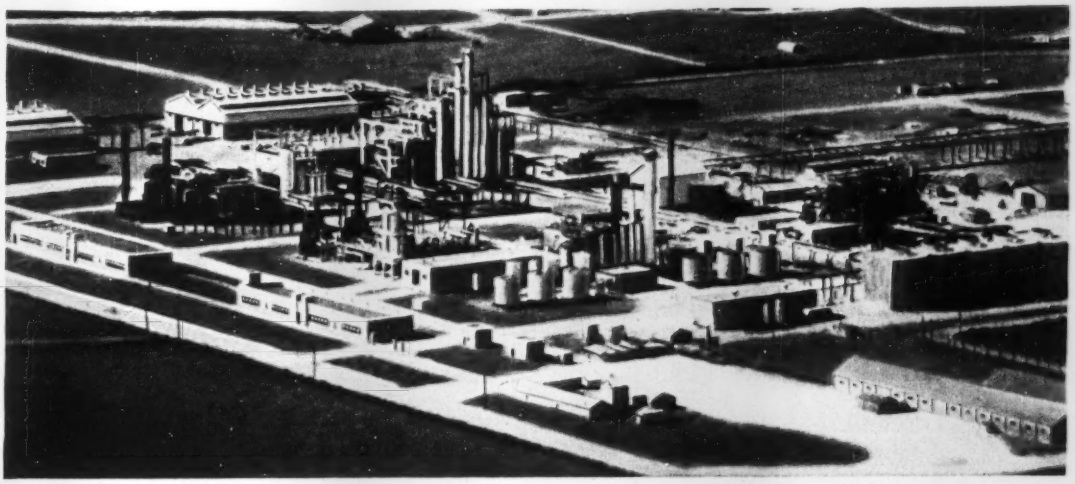
As the boat is pulled along the trench, by hand or power winch, a workman stands aboard and rocks it to achieve the necessary compaction. Considerable care is required in this operation to maintain proper shell thickness, and the concrete must be stiff enough to maintain the pipe shape after the boat has passed. Finishing is done with a steel trowel.

After about 50 ft of lower section have been placed, upper section collapsible forms, same type as for the traveling form method except for a 2-in. lap joint, are placed and supports inserted.

A 1x4-in. wooden strip is laid flat on the fresh invert so that the form setter will not leave boot tracks. It also serves as a base for braces supporting the upper forms.

To obtain an effective bond between the upper and lower arcs, the connecting surface is grouted. The upper concrete then is placed and finished successively with shovel, wood float, and steel trowel.

Openings are left at about 100-ft intervals to collapse the forms and pull them on the day after pouring. As in the traveling form method, appurtenances are placed at the time of construction, and backfill is completed as soon as possible without injury to the concrete.



Development Studies *and* Reports

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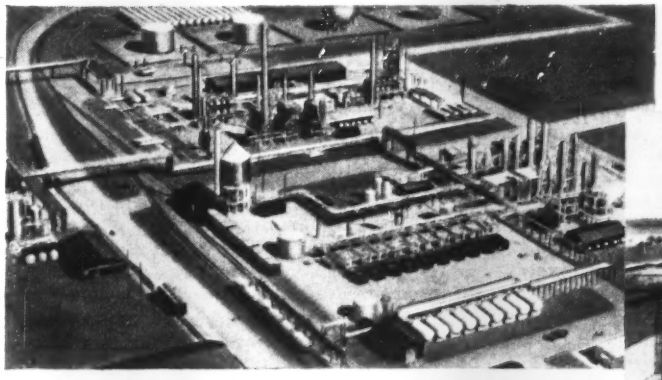

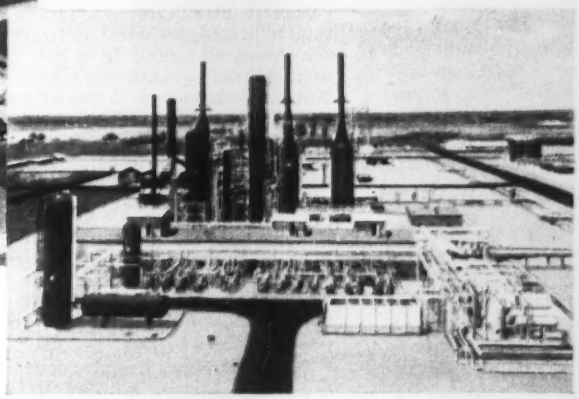

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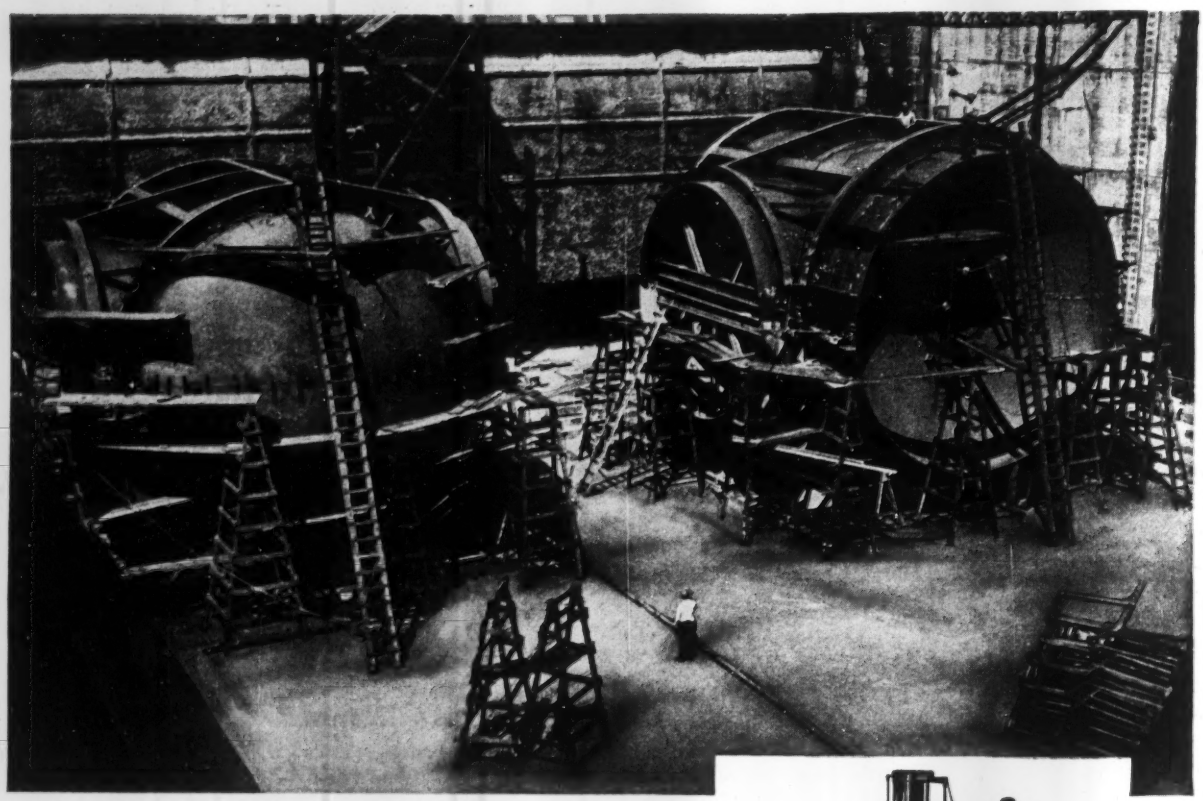
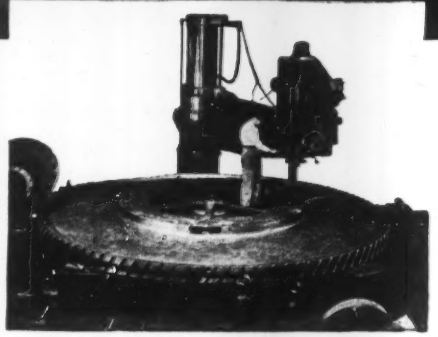


ASSEMBLING FLOW DIVERSION VALVES of an 8-foot supersonic wind tunnel for the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics.



DRILLING A 25-TON FORGING . . . one of 11 alloy steel discs used in one of the two axial flow compressors which Newport News is constructing for the NACA's Ames laboratory.

Man-made Hurricanes

PUSH A BUTTON . . . That's all it will take to accelerate wind up to several times the speed of sound in a new supersonic wind tunnel at the Ames laboratory of the National Advisory Committee for Aeronautics, in Moffett Field, California.

The tunnel is designed to develop new aerodynamic information. Its heart is the "windmaker" . . . two axial-flow compressors which look like a giant tube 50 feet long and 24 feet in diameter, studded with small blades.

Because of the size of this unit, it is significant that the task of building these mammoth compressors was assigned to Newport News.

Newport News has also constructed two diversion valves, similar to huge plug valves, for diverting the air flow from one channel of the tunnel to another, as desired.

Large engineering and technical staffs, operating a plant with acres of brass, iron and steel foundries, five huge machine shops and other extensive fabricating facilities, make Newport News an ideal source for large equipment . . . *standard or special in design.*

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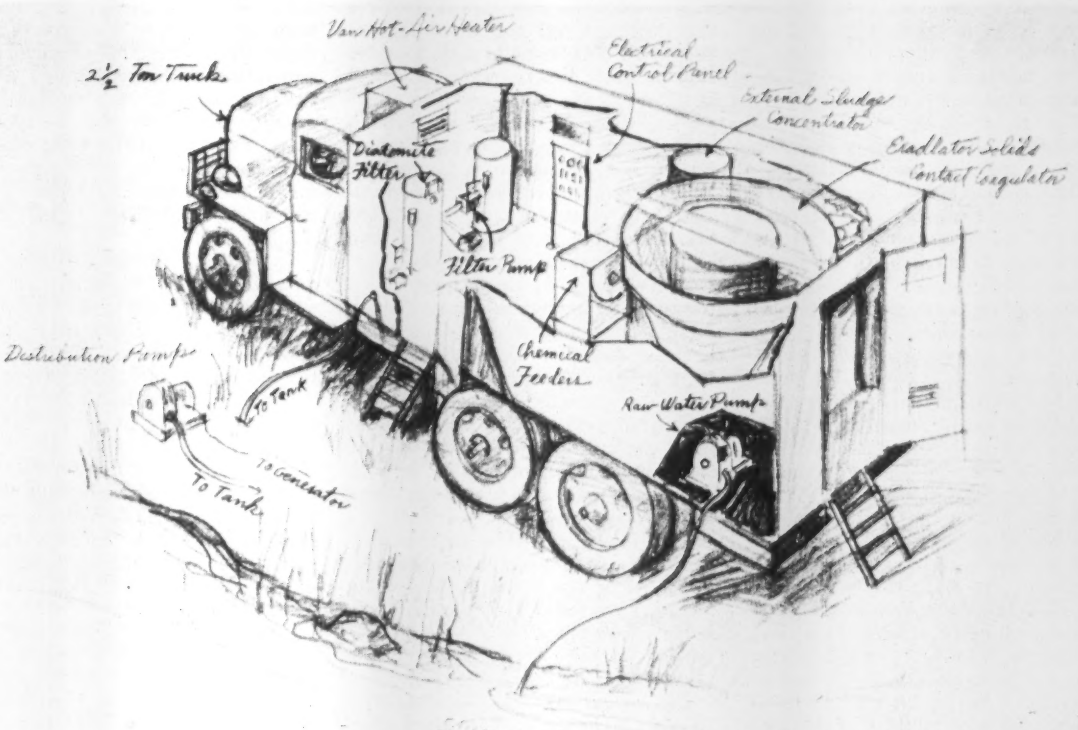


Introducing——

Army's new mobile water purification unit

By: Harry N. Lowe, Jr., Chief, Sanitary Engineering Branch; Richard P. Schmitt, Chief, Water Purification Section; Charles H. Spaulding, Consultant—All of Engineer Research and Development Laboratories, Fort Belvoir, Va.

A mobile water purification unit of radical design has been developed and tested by the Engineer Research and Development Laboratories of the Corps of Engineers (ENR Nov. 13, 1952, p. 36). Its performance has been sufficiently encouraging to warrant consideration of the basic design features for application to the entire range of capacity and types of water purification equipment required by the Army in the field.

The units consist of an Erdlator (see drawing on next page), two diatomite filters in parallel, chemical feeders, pumps, and controls; all housed in an insulated and heated van-type body mounted on a standard 2½-ton, 6x6-truck. In operation, the unit is leveled and supported by four adjustable jacks. Required clear-well capacity is supplied by collapsible, rubber coated, fabric tanks erected on the ground adjacent to the unit. Power for all purposes is obtained from a 10-kw gasoline engine-driven generator, mounted on a 1½-ton, 2-wheel trailer. For operation between zero deg F and −40 deg F, a gasoline burning heater is added to prevent freezing of the effluent in the clear well.

At 68 deg F water temperature, the equipment is rated at 2,400 gph. Power and dimensional restrictions of mobile equipment limit the maximum capacity to about 3,000 gph. Routine operation requires one operator and the equipment may be installed in less than one hour by three men. The unit is radio suppressed and is designed for operation under field conditions of total blackout.

• **The full treatment**—Purification equipment provides for aeration, coagulation, clarification, filtration, and disinfection. By selection of appropriate chemicals, the scope of treatment can be made to include not only the usual purification functions but also partial softening and the removal of odors, tastes and special contaminants. The nature of the service requires that this formidable array of functions be applicable to all types of water likely to be encountered, and above all, that operation be standardized and mechanized so that it may be performed by a minimum of manpower of the grade available in the field.

This development was made possible by more than five years of basic and applied research during which each of the three main phases of treatment has been studied independently to develop its potentialities, then conjointly with the others to improve the interrelations. The three: (1) coagulation and clarification in an Erdlator; (2) filtration through diatomite; (3) disinfection.

• **Coagulation and clarification**—Among the virtues of diatomite filters in field use may be counted the requirement for good pretreatment of the applied water to maintain production. In this respect they differ from sand filters, in which inferior pretreatment lowers the quality of effluent without significant effect upon the production volume. The Erdlator (see next page) was developed to produce the filterability required by dia-

tomite filters. It is an up-flow solids contact basin in which the total displacement time is about 20 minutes.

The aeration employed includes delivery of raw water through aspirator nozzles to a small retaining vessel where air contact continues and from which it spills in thin sheets into a cylindrical chamber leading to the bottom of the Erdlator. Several disks mounted on a central shaft rotating at 100 rpm or more in this chamber produce high mixing velocity, additional aeration, and especially separation of solids from attached gases which may escape. Provision is made for air which is separated to escape upward along the shaft to the surface, through holes in the disks near the hub or in the hollow shaft itself.

The three or more disks mounted on the rotating shaft of the mixing chamber shorten the required mixing time by creating a series arrangement of small mixing chambers from top to bottom of the shaft, thus minimizing possibility of short circuits of treated water which occur in a single chamber. A transparent model clearly shows this series of mixing chambers, each of which may contain different treatment which has been applied at consecutive intervals to the entering water.

Rotation of the water leaving the mixing compartment is reversed and the velocity controlled by the slurry energizing assembly at the bottom of the clarfying compartment. Thus the entire volume of slurry in the clarifying compartment, together with the clear water above the slurry pool is rotated. This controlled movement prevents localized short circuiting and promotes flocculation throughout the depth of the suspended slurry.

Control of slurry level in the clarifying compartment is accomplished by an exterior sludge concentrator through which a portion of the water is diverted from the level desired for the slurry. Until the slurry reaches this level, none is withdrawn and the concentrator functions as a small auxiliary clarifier. When the slurry reaches the outlet, the flow through the sludge concentrator prevents further rise under normal conditions. When treating waters requiring unusually large coagulant dosages, additional slurry draw-off, if required, can be had through the bottom drains.

A key feature of Erdlator operation is use of pulverized limestone, which has been discussed in a previous paper by the authors (Journal, AWWA, Oct. 1951). It tends to standardize raw water quality, lends weight to the suspended slurry, makes it possible to bring the unit quickly into production and provides adequate pH control. The Erdlator in the mobile unit was designed specifically for use with pulverized limestone. The required and expected performance of this design is indicated by the depth of clear water provided over the slurry pool, there being a maximum of but 10 in. between the top of the pool and the lip of the effluent weir.

Ferric chloride is the coagulant chosen for the unit. Anhydrous ferric chloride dissolves rapidly in the coldest water, thus avoiding the nuisance task of difficult solution preparation characteristic of some coagulants. It is supplied in suitable 1-lb moisture-proof wrappers. The coagulant solution is delivered by a diaphram pump feeder offering a manually adjustable feed range of 10 to 1.

• **Filtration**—Diatomite filters used in the mobile unit are an improved form of those now standard for military water supply. Each of the two filters contains 7 sq ft of effective filtering surface using wire wound elements. The filters are backwashed by the "air bump" method which, in this case, has been developed to a degree of effectiveness not heretofore attained. The air required for backwashing is trapped and stored inside each element. Air required to trigger the operation is trapped and stored above the elements on the influent side. The requirement for the conventional tube sheet is thus eliminated and the overall design simplified.

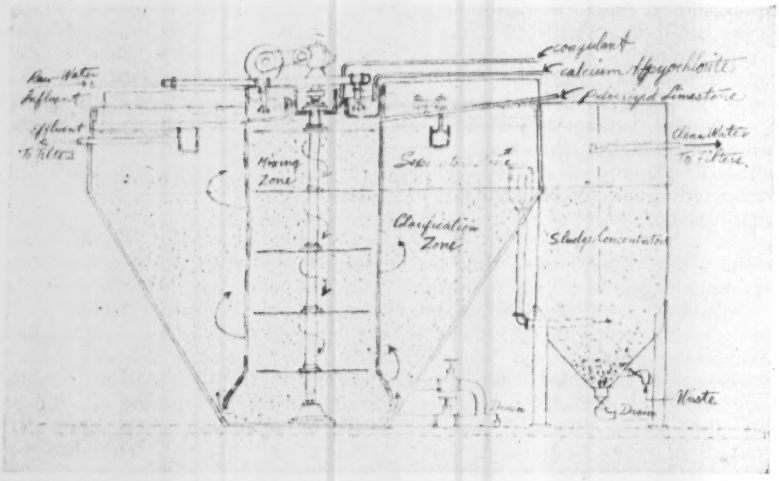
In addition to efficient removal of micro-organisms, the filters have the advantage of small size, weight and water detention. The feature of small detention has special significance in the operation of mobile equipment because it reduces drastically the water load, the starting time and the backwashing outage. Since no filtered water source is required for backwashing, the percent of production devoted to backwashing is taken as the production lost during the backwashing and precoating operation. A design figure of 2% was allowed for operation under combat conditions.

In order to operate the two filters in conjunction with a constant rate treating unit and to obtain economy of filter aid, they have been arranged to operate at constant rate, namely the capacity of their respective pumps when discharging against a limiting head which can be controlled. Suitable diatomite slurry feeding equipment of the dipper type, found to be most satisfactory for this service, has been used. As a result, the application of body feed is under positive control and observation.

• **Disinfection**—Calcium hypochlorite is used for disinfection and is applied to the water entering the Erdlator (or elsewhere if desired). The feeder is interchangeable with that used for the coagulant. Actually, the filter effluent usually meets accepted bacterial standards for potable water without disinfection, but chlorination adds an essential factor of safety.

In tests on Potomac River water, the efficiency of the Erdlator in removing bacteria and microscopic organisms was proved. The equipment was operated at rated capacity under both summer and winter conditions with normal dosages of ferric chloride and pulverized limestone, but without pre-chlorination. Bacteria reduction varied from 81 to 92% when treating water containing from 490 to 33,000 bacteria per 100 ml. Removal of from 77 to 85 percent of the microscopic organisms was obtained. In these tests raw water turbidities from 25 to 150 ppm were consistently reduced to less than 3 ppm and frequently to less than 1 ppm.

Concurrently with these tests a cooperative study was performed with



ERDLATOR: HEART OF THE UNIT is an upflow mixing—flocculation—settling basin.

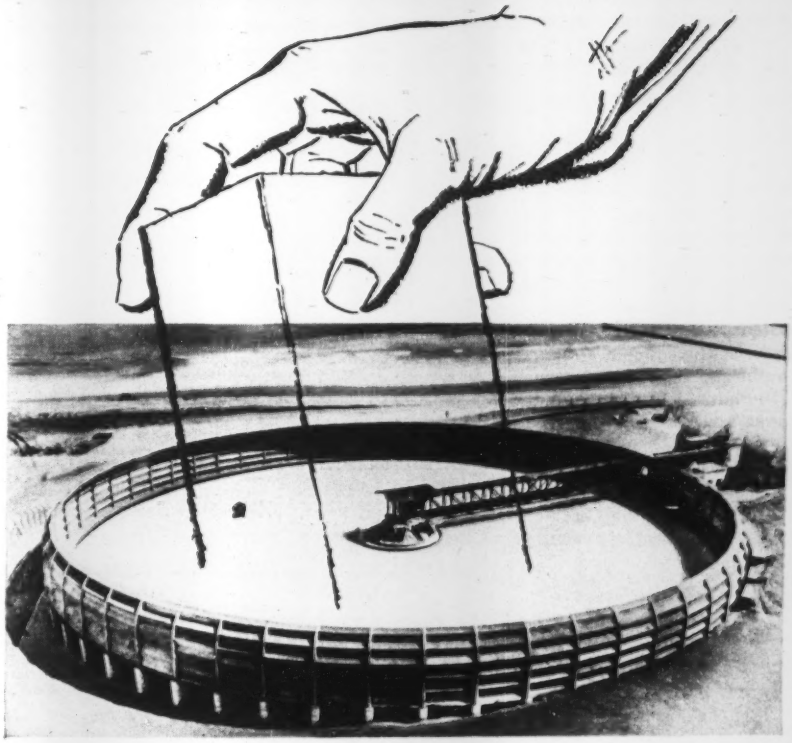
the National Institutes of Health. In one test of this series the raw water was inoculated with cysts of endamoeba histolytica at the rate of 5,500 cysts per gallon. Cysts recovered in the Erdlator effluent ranged from 0 to 8 cysts per gallon.

In tests of the complete unit—also without disinfection—the filter effluent usually met accepted bacterial standards for potable water. The ability of well designed diatomite filters to remove 100% of applied amoebic cysts has been reported previously.

• **Field experience**—Field operations at sites selected in Virginia, Utah and Illinois were made possible through the cooperation of the respective state health departments. Operation was continuous and averaged approximately 50 hours at each test site. In the treatment of waters varying in chemical and physical characteristics, the soldier operator performed only the orthotolidine test for determining the chlorine residual in the finished water. All other treatment was adjusted in accordance with the operator's observations of the clarity of the Erdlator effluent. Satisfactory performance was obtained under all test conditions.

• **In conclusion**—Water purification facilities embodying new principles and designs, uninhibited by established practices, have been developed to meet one of the most difficult of all water purification requirements: military field water supply on a global scale. The potability and safety of the water produced by this equipment, in spite of operating problems inherent in the field, is expected to be the equal of most public supplies of the U.S. and superior to many.

The mobile unit reported here is a major effort by the Corps of Engineers to assure that safe and palatable water may always be made available to the U.S. Army in the field. It was designed and developed by the Sanitary Engineering Branch, Engineer Research and Development Laboratories, Fort Belvoir, Va. Production engineering designs and construction of the test units were accomplished by Infilco, Inc., Tucson, Ariz. Major contributions were made by the Special Vehicle Branch, ERDL; National Institutes of Health, Bethesda, Md.; Wallace and Tiernan, Inc., Newark, N. J.; Chain Belt Co., Milwaukee, Wis.; American Body Co., Oklahoma City, Okla.; and Pennsylvania Salt Co., Wyndmoore, Pa. Success of field test was due to cooperation and active assistance of the state health departments involved, plus the officials of more than a score of towns and cities across the nation.



They're making FIREBRICK from seawater

at Durham, England

Products ranging from firebrick and crucibles to insulation are made from the magnesia extracted from seawater at Durham, England. The combination of modern processing techniques and equipment designed by Dorr gives a 99% efficiency in extracting magnesia from the sea.

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WEATHER

THE 30-DAY FORECAST of the U. S. Weather Bureau for the period from mid-September to mid-October calls for temperatures to average below seasonal normals (see tables on this page) over the eastern half of the country—except for near normal in New England. Above-normal temperatures are predicted for the western half of the country, with greatest departures over the Great Basin and Pacific Northwest.

Precipitation is expected to be sub-normal over the western two-thirds of the country, but in states along the Atlantic Seaboard, amounts exceeding normal are indicated. Near normal precipitation is predicted over the Great Lakes region, Ohio Valley, and the Southern Appalachians.

OBSERVED PRECIPITATION AND TEMPERATURE IN 20 CITIES, COMPARED WITH NORMALS

	Precipitation, inches				Temperature, degrees F.			
	Aug. 1953	Departure fr. normal	8 mos. 1953	Departure fr. normal	Mean Aug. 53	Departure fr. normal	Av. daily maximum	Av. daily minimum
Atlanta	1.67	−2.14	34.82	−2.42	78.9	+0.3	89.3	68.4
Baltimore	3.25	−1.13	38.09	+7.99	77.0	+0.6	85.5	68.4
Birmingham	2.80	−1.75	36.11	−2.61	79.5	+0.4	91.2	67.7
Boston	1.81	−1.42	37.57	+11.45	72.0	+0.5	80.8	63.1
Chicago	1.00	−2.19	22.01	−0.64	75.8	+3.1	86.8	64.8
Cincinnati	1.20	−2.80	22.57	−5.80	76.4	+1.6	89.1	63.6
Cleveland	3.87	+1.23	24.37	+2.79	73.5	+1.6	86.0	61.0
Dallas	1.74	−0.09	16.70	−7.29	83.8	−2.0	95.1	72.4
Denver	0.87	−0.48	10.08	−0.20	72.3	−0.1	84.1	60.5
Detroit	1.52	−1.10	19.25	−2.33	74.3	+3.0	84.9	63.6
Kansas City	0.55	−3.34	14.80	−10.06	80.0	+1.0	90.8	69.2
Los Angeles	0.00	−0.02	2.89	....	70.7	−2.2	80.8	60.5
Minneapolis	2.75	−0.05	23.94	+6.11	73.3	+1.8	83.0	63.6
New Orleans	7.38	+0.97	49.50	+4.03	82.9	−0.5	89.8	75.9
New York	3.15	−1.19	34.31	+5.15	75.2	+2.0	83.1	67.2
Philadelphia	2.63	−1.99	39.19	+9.65	76.9	+1.7	85.3	68.5
Pittsburgh	3.54	+0.05	25.88	−0.34	74.5	+1.4	85.3	63.7
St. Louis	0.84	−2.93	18.24	−8.31	79.9	+1.3	89.7	70.1
San Francisco	0.07	+0.06	9.61	−3.36	59.0	0.0	64.7	54.3
Seattle	0.71	−0.16	22.41	+4.93	65.8	+0.6	74.2	57.3

*Revised

PRECIPITATION RANGE IN 20 CITIES, IN INCHES

Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

City	Sept.	Mid. Sept.-Mid. Oct.	October	Mid. Oct.-Mid. Nov.	Nov.	Mid. Nov.-Mid. Dec.	Dec.	Mid. Dec.-Mid. Jan.	Jan.	Mid. Jan.-Mid. Feb.	February	Mid. Feb.-Mid. Mar.	March	Mid. Mar.-Mid. Apr.
Atlanta	1.69/3.60	1.64/3.25	1.59/2.90	2.01/3.38	2.43/3.85	2.94/4.58	3.46/5.30	3.42/5.32	3.39/5.33	3.38/5.50	3.36/5.67	3.40/6.00	3 43/6 33	3 12/5 72
Baltimore	2.10/3.36	1.88/3.57	1.66/3.77	1.61/3.45	1.56/3.12	1.99/3.43	2.41/3.73	2.59/3.85	2.77/3.96	2.57/3.68	2.36/3.39	2.48/3.76	2 59/4 13	2 59/4 17
Birmingham	1.71/3.69	1.62/3.14	1.52/2.58	1.84/3.24	2.17/3.91	2.94/4.83	3.71/5.75	3.75/5.58	3.75/5.40	3.61/5.64	3.47/5.88	4.18/6.26	4 48/6 63	3 91/5 85
Boston	2.04/3.70	2.26/3.88	2.49/4.07	2.62/4.26	2.74/4.46	2.82/4.33	2.89/4.20	2.83/4.12	2.77/4.05	2.70/3.99	2.64/3.93	2.79/4.22	2 94/4 50	2 66/4 45
Chicago	2.09/3.75	1.84/3.42	1.59/3.10	1.59/2.95	1.59/2.80	1.46/2.62	1.32/2.45	1.30/2.28	1.29/2.10	1.40/2.16	1.52/2.23	1.76/2.67	1 99/3 11	2 09/3 12
Cincinnati	1.79/3.08	1.64/2.99A	1.49/2.90	1.74/3.28	1.99/3.67	2.14/3.48	2.29/3.28	2.32/3.54	2.34/3.80	2.07/3.40	1.80/3.00	2.10/3.64	2 39/4 29	2 66/3 94
Cleveland	2.30/3.41	2.03/3.29	1.75/3.16	1.79/2.97	1.82/2.77	1.76/2.66	1.70/2.56	1.65/2.58	1.59/2.60	1.55/2.52	1.51/2.43	1.81/2.71	2 10/2 98	2 15/3 13
Dallas	1.77/3.10	1.66/3.30	1.55/3.50	1.60/3.25	1.64/3.00	1.36/3.00	1.09/3.00	1.24/3.05	1.39/3.10	1.49/2.70	1.59/2.30	1.96/3.08	2 34/3 86	2 50/4 68
Denver	0.52/1.05	0.57/1.08	0.62/1.10	0.46/0.89	0.29/0.68	0.34/0.72	0.39/0.77	0.28/0.64	0.18/0.50	0.26/0.54	0.34/0.58	0.46/0.84	0 59/1 10	0 96/1 75
Detroit	1.82/3.44	1.72/3.02	1.63/2.60	1.70/2.66	1.77/2.73	1.70/2.66	1.64/2.60	1.63/2.50	1.62/2.40	1.56/2.45	1.51/2.50	2.14/2.64	1 77/2 78	1 78/2 76
Kansas City	2.99/5.00	2.34/4.54	1.69/4.07	1.48/3.21	1.27/3.25	1.02/1.95	0.77/1.55	0.68/1.48	0.59/1.42	0.80/1.66	0.99/1.90	1.29/2.40	1 59/2 90	1 99/3 15
Los Angeles	0.00/0.03	0.08/0.32	0.15/0.60	0.20/0.95	0.26/1.30	0.70/2.00	1.14/2.70	1.19/3.00	1.24/3.30	1.12/3.25	0.99/3.20	1.06/3.08	1 13/2 95	0 68/1 92
Minneapolis	2.29/3.85	1.79/3.15	1.29/2.45	0.98/2.01	0.67/1.57	0.62/1.44	0.57/1.30	0.60/1.19	0.64/1.08	0.58/1.08	0.52/1.08	0.75/1.38	0 98/1 67	1 34/2 14
New Orleans	3.11/5.50	2.55/4.81	1.99/4.12	2.34/4.40	2.69/4.67	2.96/4.92	3.24/5.17	3.36/5.28	3.49/5.40	3.14/5.05	2.79/4.70	3.00/5.00	3 22/5 30	2 94/5 15
New York	2.21/3.40	2.15/3.76	2.09/4.13	2.15/4.04	2.21/3.95	2.42/3.86	2.64/3.77	2.55/3.71	2.46/3.65	2.41/3.88	2.36/4.10	2.35/4.08	2 34/4 05	2 40/3 92
Philadelphia	2.09/3.90	2.04/3.85	1.99/3.80	2.18/3.65	2.36/3.50	2.50/3.70	2.64/3.90	2.60/3.80	2.57/3.70	2.57/3.69	2.57/3.68	2.60/3.84	2 62/4 00	2 56/3 91
Pittsburgh	1.87/2.80	1.98/3.00	2.09/3.20	1.96/2.96	1.84/2.92	1.96/3.00	2.09/3.27	2.21/3.20	2.14/3.13	1.96/2.98	1.77/2.83	2.06/3.15	2 34/3 47	2 32/3 44
St. Louis	2.09/3.58	1.89/3.42	1.69/3.25	1.78/3.28	1.86/3.30	1.70/3.05	1.64/2.80	1.52/2.75	1.39/2.70	1.48/2.80	1.57/2.90	1.92/3.42	2 27/3 95	2 43/3 88
San Francisco	0.00/0.26	0.10/0.73	0.19/3.20	1.12/2.25	1.04/3.30	1.62/4.28	2.19/5.25	2.34/5.12	2.49/5.00	2.24/4.86	1.99/4.71	1.96/4.13	1 94/3 55	1 30/2 54
Seattle	1.07/2.20	1.70/2.85	2.32/3.50	3.07/4.55	3.82/5.60	4.00/5.74	4.17/5.89	4.14/5.87	4.12/5.25	3.34/4.92	2.55/4.60	2.18/4.02	1 81/3 43	1 72/3 16

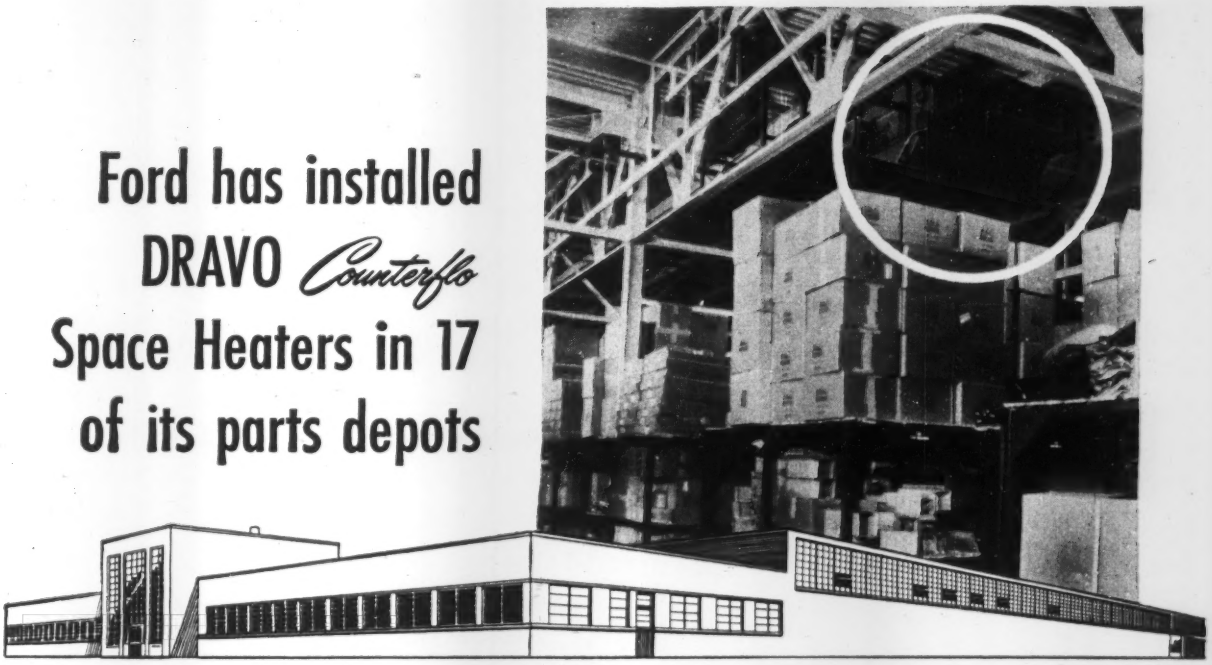
A—Lexington, Ky. T—Traces (Less than 0.005 inches)

MEAN TEMPERATURE RANGE FOR 20 CITIES, IN DEGREES F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	Sept.	Mid. Sept.-Mid. Oct.	October	Mid. Oct.-Mid. Nov.	Nov.	Mid. Nov.-Mid. Dec.	Dec.	Mid. Dec.-Mid. Jan.	Jan.	Mid. Jan.-Mid. Feb.	February	Mid. Feb.-Mid. Mar.	March	Mid. Mar.-Mid. Apr.
Atlanta	72.9/75.4	68.2/70.2	62.3/63.8	56.6/58.2	76.9/78.5	46.6/48.4	44.0/46.0	43.3/45.3	43.5/45.5	44.0/46.4	45.1/47.9	47.5/50.1	51 2/53 6	55.9/58 0
Baltimore	67.1/69.4	62.2/64.4	56.4/58.3	50.9/52.6	45.6/47.0	40.2/42.0	35.8/37.8	32.2/36.1	33.9/35.7	33.4/36.0	34.6/38.0	38.1/41.7	42 0/45 7	46.6/49 4
Birmingham	73.3/75.6	68.5/70.7	62.2/64.2	56.2/58.5	50.7/53.2	46.5/48.9	44.3/46.5	43.4/46.1	43.5/46.5	44.4/47.6	46.0/49.4	48.8/51.7	52 4/54 7	56 6/58 5
Boston	63.3/65.4	58.9/61.0	54.2/56.2	49.3/51.3	43.6/45.6	36.8/39.2	31.2/34.0	28.9/31.9	27.9/31.2	26.4/29.6	27.8/30.0	31.4/34.0	35 6/38 6	41 1/43 3
Chicago	64.5/66.7	59.3/61.7	52.8/55.3	45.9/48.6	38.6/41.5	31.2/35.0	25.7/30.3	23.7/28.5	23.2/28.1	23.1/28.1	24.7/30.0	29.2/34.2	34 6/39 1	40.9/43 8
Cincinnati	66.5/68.4	61.2/63.3	54.9/57.1	38.6/50.9	42.0/44.5	35.9/39.1	31.4/35.2	30.1/34.4	29.8/34.6	29.9/34.4	31.6/36.0	35.2/39.2	39 6/43 1	45 4/48 1
Cleveland	64.7 67.1	59.5/61.9	53.5/55.6	47.1/49.3	40.5/42.7	34.3/37.2	29.3/32.9	27.3/30.9	26.9/30.5	26.0/29.6	26.2/29.7	29.8/33.7	34 7/38 8	40 3/43 2
Dallas	78.1/79.7	73.8/75.1	68.5/69.4	61.4/63.1	54.3/56.7	49.9/52.3	47.0/49.3	44.8/47.1	44.1/47.5	45.8/49.2	48.8/52.2	51.9/55.6	55 5/59 6	60 1/63 7
Denver	62.2/63.4	56.7/58.3	50.8/52.8	44.5/47.2	38.0/41.4	33.5/36.7	30.5/33.5	28.3/31.4	27.0/30.0	27.9/31.5	30.5/34.7	33.1/36.8	35 9/39 1	40 4/43 2
Detroit	63.0 65.6	57.8/60.2	51.9/54.1	45.8/47.9	39.2/42.1	32.9/35.3	27.9/30.9	25.6/28.5	24.8/27.7	24.2/27.8	24.6/28.9	27.9/32.1	33 1/37 2	39 3/42 1
Kansas City	69.7/71.9	64.4/67.0	58.1/61.2	50.7/53.9	42.6/45.9	36.7/40.1	32.4/35.9	30.4/33.0	30.0/31.9	30.2/33.6	32.2/37.1	37.3/41.2	42 9/45 9	48 6/51 3
Los Angeles	65.9/67.3	64.4/65.9	62.7/64.2	60.5/62.1	57.9/59.8	56.5/58.2	54.9/56.5	53.4/54.8	52.7/54.0	52.6/54.3	52.9/55.1	54.1/56.3	55 4/57 4	56 6/58 4
Minneapolis	61.0/63.6	55.5/58.3	48.8/51.7	40.6/44.5	30.9/36.0	22.5/28.1	16.2/22.3	13.8/18.4	13.4/16.5	13.3/17.7	15.0/20.8	21.7/25.9	29 9/32 5	37 3/40 3
New Orleans	78.5/79.7	75.1/76.5	70.5/71.9	64.6/66.8	59.0/61.9	56.0/58.5	54.6/56.8	53.2/56.0	52.6/56.0	54.0/54.4	55.9/59.3	57.6/60.8	60 6/63 0	63 4/65 7
New York	67.4/69.0	62.7/64.3	57.0/58.6	51.8/53.2	46.5/47.9	40.2/42.3	34.6/37.5	32.5/35.2	32.0/34.6	30.9/33.6	30.9/33.6	34.1/36.8	38 7/41 3	43 6/46 0
Philadelphia	66.8/68.5	61.6/63.5	55.6/57.6	50.3/52.3	45.3/47.2	39.5/42.0	35.1/37.3	32.7/35.4	31.8/35.0	31.1/34.3	32.3/35.3	36.4/39.2	40 8/43 5	45 6/47 9
Pittsburgh	64.0/65.9	58.8/60.9	52.0/54.4	46.2/48.2	40.3/42.0	34.0/36.4	29.8/32.6	27.8/31.0	26.9/30.1	26.4/30.5	26.9/32.0	30.5/35.4	36 0/40 6	43 3/46 5
St. Louis	69.1/71.2	64.0/66.3	58.1/60.5	51.0/53.9	43.6/46.9	37.6/41.2	33.3/37.1	30.9/35.1	30.1/34.7	31.3/35.7	33.7/38.1	37.8/41.8	42 9/46 3	48.6/51.5
San Francisco	61.3/62.8	60.4/62.0	58.5/60.2	56.4/57.9	53.8/55.0	50.9/52.3	48.7/50.2	47.1/48.9	46.9/49.1	48.3/50.8	50.0/51.7	51.0/52.8	51 7/53 5	52 4/54 2
Seattle	58.0/59.0	54.8/56.1	51.0/52.5	46.8/48.3	43.1/44.5	41.0/42.4	39.4/40.7	37.7/39.0	37.2/38.5	38.2/40.0	39.7/42.0	41.7/43.3	43 6/44 7	45 8/47 2

Ford has installed DRAVO *Counterflo* Space Heaters in 17 of its parts depots



In planning the heating system for 17 of its parts depots in various parts of the country, Ford Motor Company wanted to:

1. Keep floor areas free for maximum storage
2. Heat large warehouse areas
3. Provide uniform heat throughout the area

Typical of the Dravo *Counterflo* Space Heaters installed by Ford is the one illustrated at its Cleveland Parts Depot. Dravo Heaters provide:

ADAPTABILITY—Dravo Heaters are mounted horizontally on overhead girders, 16 ft. above the floor, saving valuable storage space and allowing maximum use of the floor area.

PENETRATION—Dravo Heaters' high-capacity fans re-circulate the air completely throughout the 140,560 sq. ft. area in 25 minutes, despite the tiering of material in uneven heights. Directional louvres guide the flow of air. The area can be warmed quickly in winter and cooled easily in summer.

ECONOMY—Dravo Heaters are thermostatically controlled to keep temperatures constant. Installation cost was kept to a minimum, because no ductwork was required. Minimum efficiency is 80%. Roof heat losses are low.

These and many other advantages can be yours when you install Dravo *Counterflo* Space Heaters in your commercial or industrial building. Write for complete details. Use the coupon.

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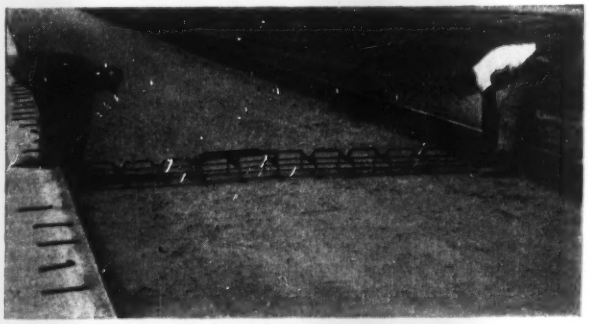
New Idlewild Taxiway Carries Lots of Weight

New taxiway at Idlewild is designed to carry heavy planes like this BOAC Stratocruiser. The taxiway is 6000 ft long and 100 ft wide

Giant superliners, bound for points overseas, are now using new taxiway T27 at New York International Airport, at Idlewild. This mile-long strip, containing more than 23,000 cu yds of concrete, is 13 in. thick and supports a 300,000-lb plane equipped with two sets of dual wheels.

Located at the south end of Idlewild, taxiway T27 was designed to carry heavy Constellations, Stratocruisers and other big planes between international runways and the loading stations. Bethlehem Dowel Units, of the same type that were selected for the original runways and taxiways at Idlewild, were used in the construction of this new taxiway.

Minimizing load-transfer problems caused by heavy wheel loads, Bethlehem Dowel Units transfer the weight of the plane from one side of the joint to the other, while offering minimum restraint to the movement of the slab due to expansion or contraction. The units hold the dowels in accurate alignment at all times, permitting free dowel movement in the concrete.



Bethlehem Dowel Units minimize load-transfer and expansion-contraction problems.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

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Replace all divots

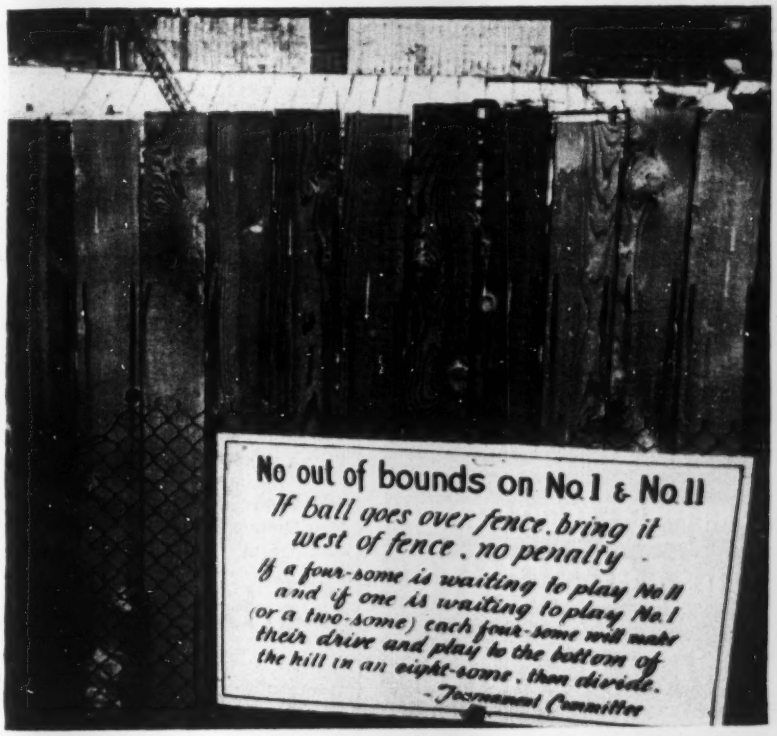
Golf goes on in Omaha—new reservoir top will support tee and fairway

What must be the biggest divot in golfing's history is the 135,000-cu yd excavation at the Omaha, Neb., Field Club.

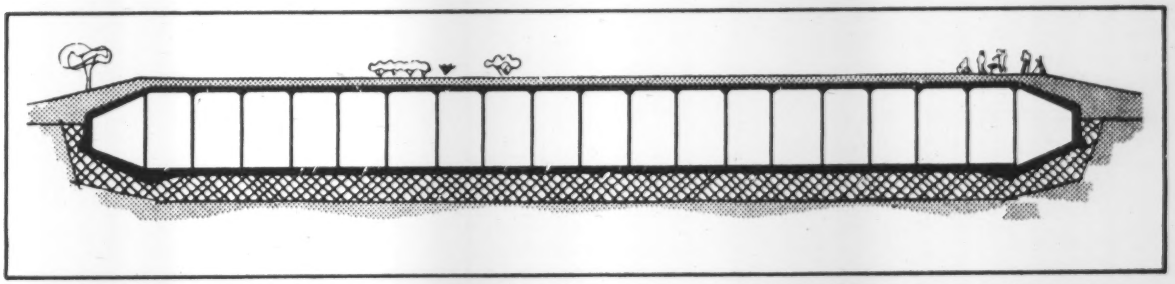
In keeping with the golfing nicety that requires all divots to be replaced, the hole is being filled with a 25-million gallon underground reservoir of the Omaha Metropolitan Utilities District.

When finished, the reservoir will be invisible, under three feet of earth and sod. The landscaped topping for the big tank will serve as the number one tee and fairway for the course (which in 1939 was the scene of the United States national amateur golf tournament).

The location prompted design of the $1.2-million reservoir, according to Metropolitan's General Manager Walter S. Byrne, to conform to the golf course and the surrounding better-class residential area. In shape, the reservoir is—so to speak—an elongated octagon with oversized top and bottom planes. When covered, the 400x


No out of bounds on No I & No II
If ball goes over fence, bring it west of fence, no penalty
If a four-some is waiting to play No II and if one is waiting to play No I (or a two-some) each four-some will make their drive and play to the bottom of the hill in an eight-some, then divide.
-Tournament Committee

CONSTRUCTION dominates the background, but this sign proclaims to all that building a reservoir shall not interfere with the serious business of golfing.



SECTION OF TANK is an elongated octagon. Vertical members are columns that will carry the heavy weight of the roof.

HOOKS AND SLICES constitute a new hazard to guard against as building and golfing go side by side.

IN SEVEN MONTHS this tank will be covered by a tee and fairway of the golf course seen at right.

just nail 'em in...
pour your concrete

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WATERSTOPS

● Concrete shrinkage *can't* cause leakage between pours when you're protected by ribbed and grooved polyvinl plastic Labyrinth Waterstops in the joints.

Economical? You bet...No special forms, no metal fins to bend or tear...no maintenance cost, AND...

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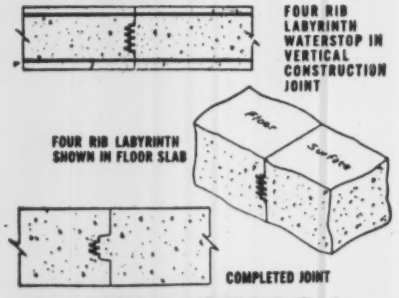

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260x35-ft tank will be invisible under a low hillock standing 10 ft above the surrounding terrain.

• **Foundation problem**—The chief engineering problem was that of foundation preparation to support the heavy load (weight of the water in the tank alone is over 104,000 tons). The soil is wind deposited loess. To support the reservoir's weight satisfactorily required it to be compacted and safeguarded against moisture.

Compaction required removal of 135,000 cu yd, an operation that was complicated by the limited work area. To keep from disturbing golfers, the work area was restricted to a space measuring 600x350 ft. Since the greater portion of that area had to be kept open for excavation operations, the contractor had to pile his spoil into a mountain 60 ft high.

Of the earth removed, 105,000 cu yd was returned. Earth was compacted to a depth of four feet around the foundation. Density was raised from 85 to between 95 and 100 percent.

Because loess soil loses its bearing strength drastically when wet, the anti-moisture precautions that followed were elaborate. The compacted base was closed off with a sealing layer of low strength concrete over the entire area. Atop this was placed a 12-in. layer of sand with an extensive system of 8-in. perforated metal pipes for drainage. Placed no more than 20 ft apart, they conduct seepage water into a sump nearby where pumps lift it into the sewer.

The tank proper is of reinforced concrete, 24 in. thick. The roof is to be supported by 170 columns, each 2½ feet square, set on 20-ft centers. Pouring is in sections, with labyrinths to seal joints.

The reservoir, on which construction has progressed all summer is scheduled for service next April. The project contractor is Hagstrom Construction Co. of St. Paul, and designers are Burns and McDonnell of Kansas City, Mo.

Garbage composting tests

Answers to many questions about composting of city garbage were contained recently on release of a report covering a 3-year University of California research.

Among clearly emphasized problems as yet unsolved are proper methods of grinding and turning, and the economics of the process. The study included both laboratory and field tests on aerobic composting methods suitable for municipal garbage dumps. This process is in contrast with tank-type composting – anaerobic decomposition method—used by some European projects.

• **An acceptable solution**—Researchers found that a "rapid, aesthetically acceptable, reliable and economical method of composting includes segregating, grinding, stacking, turning and regrinding." The time required is between 14 and 21 days, depending to quite an extent upon the initial moisture content and the carbon-nitrogen ratio of the waste.

Control of the process by moisture adjustment and turning for aeration require a knowledge of how to judge the condition of the compost by temperature, odor, color, physical appearance and laboratory tests.

• **Commercial possibilities?** – The report estimates that there would seem to be a good opportunity for risk capital going into the business of composting municipal refuse, but it also concludes that the value of finished compost is difficult to estimate. On a large scale basis, commercial farming provides the only substantial market. The sale price to such a market would have to be lower than the $15 to $20 per ton cost reported by one small scale venture.

In competition with incineration, composting would have to return through sales all but $2 or $3 per ton of the production cost; and all but about 70 cents per ton in landfill disposal communities. Even where fill area is scarce, or where incineration presents an air pollution problem, composting probably will not be favorably considered if it greatly increases the total cost of the refuse operation.

Aside from the dollar question, the biggest unsolved problem seems to be development of suitable grinding equipment. (Grinding or shredding facilitates handling and increases response of the waste to moisture control and aeration). This is directly related to the need for some adequate method of segregation to remove hard-to-grind materials. The report points out that such equipment will be developed if there is a reasonable demand for it, but that the demand is delayed by lack of equipment.

• **Other important** conclusions are:
• Micro-organisms are indigenous to municipal refuse in such great num-

bers as to make inoculation entirely superfluous.

- A maximum temperature of 73 to 75 deg C is attained during the composting process—sufficient to kill pathogens and flies in all stages of development.
- Municipal refuse composts readily with either raw or digested sludge.

Principal work on the research was done by Bradley J. Card, Clarence Golueke, and L. G. Rich. Harold B. Gotaas is director and P. H. McGaughey is assistant director of the University of California sanitary engineering research projects.

Results of the research are published in an illustrated, 89-page Technical Bulletin 9 entitled "Reclamation of Municipal Refuse by Composting" available for $1.00 from Sanitary Engineering Research Projects, University of California, 1301 S. 46th St., Richmond, 4, Calif.

Lynn, Mass., gets new parkway

The Metropolitan District Commission of Boston, Mass., has approved plans for a $3.4-million, 6-lane cutoff from the General Edwards Bridge to Lynn Shore Drive as a means of alleviating congestion in downtown Lynn.

The 2.25-mi route will take about a year and a half to construct, and will meet traffic needs for an estimated 20 years.

The new link will bypass a one-mile section of streets which, according to a recent survey was the scene of 10% of all traffic accidents occurring on Lynn's 165 mi of roads.

Ice blocks lower live main; water service unaffected

The problem of lowering 1,750 ft of live 8-in. water main to allow street leveling operations without discontinuing service was solved recently in Henrico County, Va., through application of a classic engineering school method of lowering the 12-ft square machine into 12 ft-$\frac{1}{2}$ in. square pit.

L. H. Lingerfelt, Department of Sanitary Districts engineer, fearing burst joints as a result of unequal distribution of weight on the conventional rope slings, elected to lower the pipe to the proper level on ice.

When excavating under the pipe was completed and the pipe blocked up, 950 lb of ice was delivered on the job in 50 and 100-lb chunks. The ice was placed under the main, the timber blocks were removed and the water line dropped to its ultimate level at a rate of about four inches per hour.

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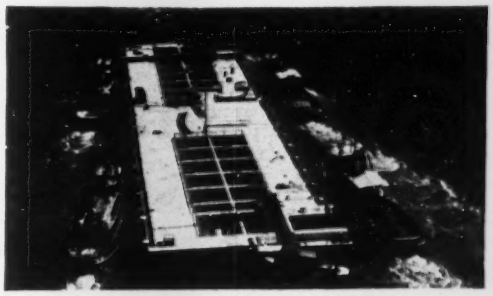
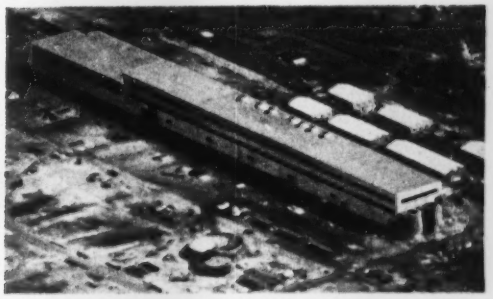
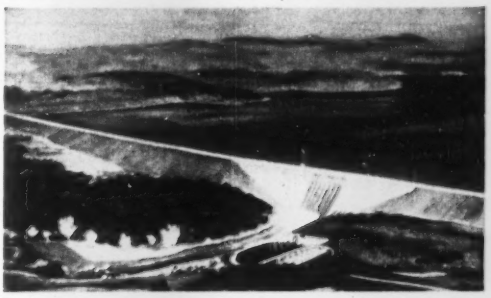


1 *One of three "boxes" for New York City's new "pontoon-type" Pier 57, North River.*



2 *300-ton per day sulphate pulp and paper mill at Jacksonville, Florida, for St. Regis Paper Co.*



3 *New dam across American River near Folsom, Calif.*

4 *960-bed hospital at Poughkeepsie, New York.*

1 MARINE CONSTRUCTION—M-C&S versatility in this field is reflected in a wide variety of projects that include bridges, piers, and every other type of marine installation.

2 INDUSTRIAL CONSTRUCTION—Some major projects in this field currently include four paper mills and three chemical plant installations in this country and abroad.

3 HEAVY CONSTRUCTION—Tunnels, dams, pipelines and other similar projects are equally "in our line".

4 BUILDING CONSTRUCTION—In the field of hospital construction alone, M-C&S has five Veterans Administration and State hospitals to its credit in the past five years.

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Dual electrical system assures reliable power at Elm Fork

Completion of the Elm Fork Water Purification Plant represents a major stride in the water works expansion program at Dallas, Texas. Costing eight million dollars, this outstanding installation doubles the city's purified water supply. It boosts total plant capacity to 200-mgd.

Reliable electrical service at Elm Fork is assured by a secondary selective radial distribution system—adapted by Dallas' engineers, in collaboration with the consulting engineers and Westinghouse. Duplicate primary feeders, bus, transformers and switching equipment are provided. Thus, should a feeder or transformer fault occur, service is restored quickly to all loads.

Compact and unitized Westinghouse equipment was chosen for the Elm Fork system. It conserves building space . . . simplifies maintenance due to accessibility of breakers . . . can be expanded easily as loads grow.

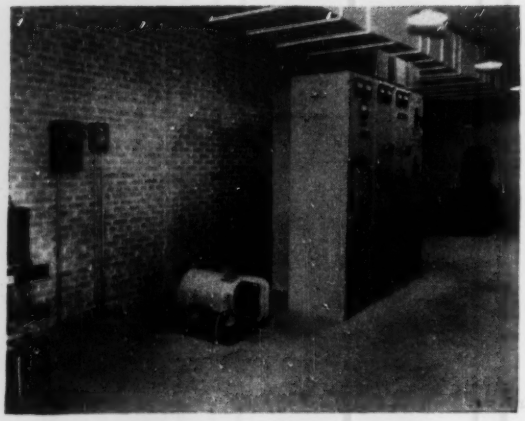
You can profit from this same kind of assistance. Whether the program calls for expansion or modernization, Westinghouse engineers are ready to help you and your engineers adapt a distribution system . . . and match it with a complete line of co-ordinated equipment.

For full details call the Construction Application Engineer at your local Westinghouse Office. Or write direct to Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

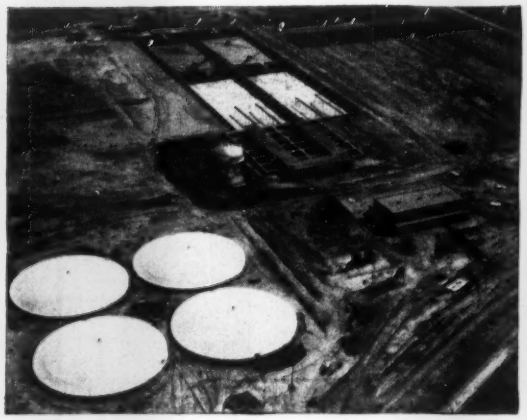
J-94993

YOU CAN BE SURE...IF IT'S

Westinghouse

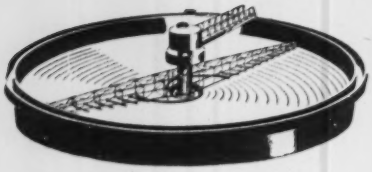


Westinghouse Battery Charger Board controls motor-generator sets which charge batteries. These supply d-c power to the swichboard relays as well as other devices in the Elm Fork electrical distribution system.

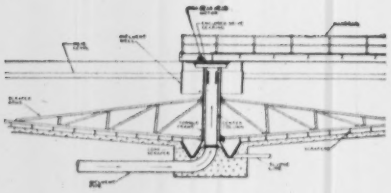


Elm Fork Water Purification Plant doubles the Dallas, Texas water supply. Along with new mains, added recently, it can be expanded easily in the future. Consulting engineers for the project: Myers & Noyes.

Westinghouse Metal-Clad Switchgear is mounted in a single line, over 100 feet long. This permits maintenance of circuit breakers and transfer of loads from front of switchboard, without power loss at any point.



Center-Discharge
Center-Feed
Clarifiers



One reason for the efficiency of Hardinge Clarifiers is the fact that the influent goes directly to a central stilling well and the underflow also is centrally removed. This promotes quick disposal of the heavier solids immediately upon entry—makes less work for the rotating sludge scrapers. The clear effluent overflows the tank periphery, where velocity is at a minimum. Bulletin 35-C-55.

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CONCRETE PIERS for new highway bridge contract. The narrow wooden truss bridge is on the old highway.

Nicaragua gets new loans for all-important road program

Additional shipments of construction equipment and materials will be moving from the U. S. to Nicaragua during the next two years. The World Bank last week made two new loans totaling nearly $4-million to the Central American republic.

One loan for $3.5 million will be used by the Nicaraguan government to pay for imported equipment, materials, and services to carry forward the second major step of its three-year old national highway program. The second loan, for $450,000, will buy an electric generating unit to help ease the serious power shortage around Managua, the nation's capital.

• **The root of the problem** — Poor transportation has been the biggest block to Nicaragua's development. A World Bank survey team has estimated that when the secondary roads are completed, trucks will be able to haul goods at one-fifth to one-tenth the present cost. The bank expects all commerce to be stimulated and farm production to increase 30%.

With $2 million of local currency supplied by the Nicaraguan government, a $3.5-million World Bank loan in June, 1951, financed construction of some 160 miles of all-weather arterial roads connecting Managua with the provincial capitals and seaports. Last week's loan will aid in the second phase of Nicaragua's long-range program for building a national road system. The second phase covers a network of all-weather feeder and access roads totaling 430 miles, plus two additional links in the main highway system.

For the present, Nicaragua is building its roads with government forces and equipment. As soon as an adequate corps of highway engineers has

HIGHWAY CUTS are often deep and twisting in Nicaragua's jagged terrain.

been built up to supervise the work, the government will switch over to contract construction of its roads.

International briefs . . .

• **Jordan seaport**—Jordan's only direct outlet to the sea, Aqaba, has just finished the first phase of a series of major improvements. The port, on the gulf of Aqaba which empties into the Red Sea, now has new and expanded warehouse facilities ready for the installation of cargo handling cranes. Sections of new highway and rail connections have been completed, and the long range plan will involve more highway and rail construction besides new docks and warehouses.

• **Bigger port for Israel**—Israel is finishing the first stage of the Kishon River Development, just north of Haifa, in a plan to make that city one of the main seaports on the eastern Mediterranean. The project involves a new canal to be dredged out of the Kishon River in order to create 1,000 acres of new harbor complete with quays, warehouses, rail facilities, and electricity. About $2 million has been expended so far with some $12 million to be spent in the near future.

• **Berlin housing**—The U. S. Foreign Operations Administration has granted $15 million for the construction of new housing in West Germany and West Berlin. The housing, for the use of refugees from East Germany, will be located in areas where employment may be obtained.

• **Brazilian cement plants**—To meet the requirements of Brazil's construction boom, the Brazilian government has decided to grant new and existing cement plants a five-year exemption from import duties and related taxes. The aim of the government is to attract foreign and domestic investment in order to stimulate the much needed expansion of the cement industry. The tax exemptions will cover all kinds of equipment related to the production and transportation of cement, and the production and transmission of power for the industry's basic operations.

• **Equipment plant for Japan**—The Woolbridge Manufacturing Co., of California, is studying plans to build a plant in Tokyo for the manufacture of earth-moving equipment. Tokyo is considered by the company the most suitable spot in Asia for such a project.

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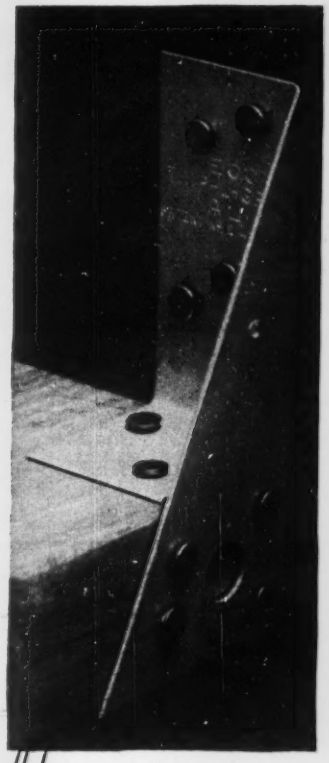

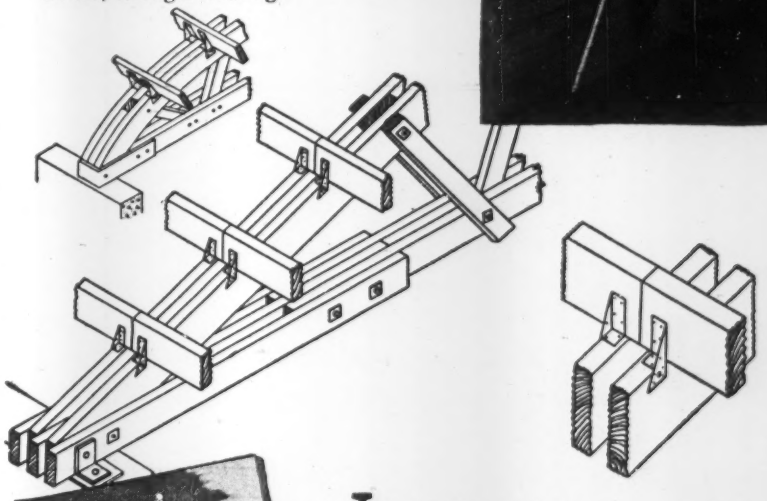

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OBITUARIES

Julian T. Stafford, 53, structural engineer, died in Los Angeles, Calif., recently. He took his C. E. degree at the University of California in 1925. He started with the American Bridge Co. In 1933 he joined the California division of architecture and became district structural engineer in charge of the school reconstruction program. During World War II he was civilian planning coordinator for construction work in the 11th Naval District.

Walter F. Griffin, 63, who designed buildings at Miami University, Oxford, Ohio, and Berea College at Berea, Ky., died at Covington, Ky., Sept. 3.

Ernest R. Burkhardt, 65, of Oak Park, Ill., general superintendent of construction for the George A. Fuller Company, general contractors of Chicago and New York, died Sept. 7.

George M. Weddle, 93, who retired 20 years ago after half a century of work as a builder in Anderson, Ind., died Aug. 30. He specialized in the construction of large houses.

Arthur M. Greene, Jr., 81, dean emeritus of the Princeton University School of Engineering and former consultant on engineering to private corporations and government agencies, died at Madison, Conn., Sept. 2. His home was at Princeton, N. J. He was dean of the school of engineering from 1922 to 1940 when he retired. He had been president of the Society for the Promotion of Engineering Education. He began teaching in 1894 as an instructor at Drexel Institute, Philadelphia, Pa. He studied engineering in Germany in 1896 and 1905.

Romeo Betts, 86, who retired recently as chief engineer and vice-president of Robbins-Ripley Co., waterfront engineers, New York, died at Summit, N. J., Sept. 13. He was one of the oldest graduates of Columbia University—the class of 1890. At one time he served as deputy engineer for the Department of Docks and Ferries, N. Y. City.

Harold E. Hilts, 70, deputy commissioner of the Bureau of Public Roads, died at Silver Springs, Md., Sept. 5. He had been with the bureau since 1936, chiefly in charge of design. For the last seven years he had been chairman of the committee on planning and design policies of the American Association of State Highway Officials.

He was a member of the United Nations group of experts preparing for a world-wide system of highway signs and signals. He also was chief of the highway mission from the U. S. to Turkey. He was a 1905 C.E. graduate of the University of Pennsylvania.

Park F. Matteson, 68, retired civil engineer, died in Albany, N. Y., Sept. 3. He was graduated from Rensselaer Polytechnic Institute in 1908, and was an engineer for the State Highway Department 35 years before he retired 10 years ago. He supervised construction of many roads in the Albany area.

E. Clinton Jansen, 74, hydraulic engineer who was with the former Colorado Power Co. in building the power plant in Boulder canyon, died in Denver, Colo., Sept. 2.

Norris E. Hadley, 76, structural engineer and instructor who retired last year from the faculty of Franklin Technical Institute, Boston, Mass., died recently at York, Me. He was a 1906 engineering graduate of Tufts College. He started with the Massachusetts Land Commission; was structural draftsman for the American Bridge Co., Ambridge, Pa., and the Boston Bridge Works, Cambridge, Mass. Other connections were with Aberthaw Construction Co., Boston & Maine R. R., Stone & Webster, Massachusetts Department of Public Works, and Lever Bros. Latterly he taught at Tufts and Franklin Technical Institute.

Charles C. Huestis, 83, a retired civil engineer, died Sept. 4 at Youngstown, Ohio. He was an 1892 civil engineer graduate of Cornell University. From 1894 to 1899 he was an assistant engineer on N. Y. State canals. He was contractor's engineer on the Riverside Drive viaduct in N. Y. City, and later was with several construction companies and an officer of manufacturing concerns in Indiana.

John Raccuia, 70, president of the Fargo Construction Co., Buffalo, N. Y., died Aug. 30. He was a pioneer in heavy construction in the Buffalo area. The company he headed did much of the excavation and construction of the sewer and water systems in Erie County towns.

Jerry Flickinger, 54, city engineer for Niles, Ohio, for more than 10 years until his retirement three years ago, died Aug. 24.

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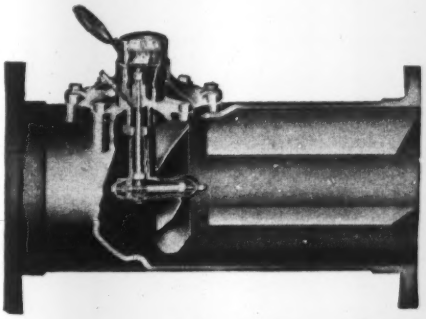

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MEN AND JOBS

Careers . . .

• **Government appointments** — **1st Lieut. Bernard T. Hassett,** Corps of Engineers, has been assigned to the Upper Mississippi Valley Division as military assistant to the St. Louis district engineer . . . **Byron David,** field engineer at Canyon Ferry Dam, has been transferred by the Bureau of Reclamation to serve as chief field engineer at the Poctola Dam project in South Dakota . . . The Atomic Energy Commission recently named **William A. Curtis** as field manager of its new Spoon River plant in Fulton County, Ill. Curtis was the project engineer there .

• **Local government appointments**— **Mitchell W. Tinder** has been appointed executive assistant to Commissioner William P. Curlin of the Kentucky state highway department . . . **William Collins,** president of Walter Kidde Constructors, Inc., New York engineers and builders, has been named by Gov. Thomas Dewey to a committee that will study financial problems of privately-owned bus companies in New York state . . . **Maj. Gen. Richard Smykal,** Wheaton, Ill., contractor, has been appointed deputy building commissioner of Chicago . . . **W. J. Leary,** former assistant state highway engineer for the Montana highway department, has been named director of public service for Helena . . . **William G. Hamlin,** sanitary engineer and specialist in industrial waste-control engineering, has been appointed to the staff of the Ohio River Valley Water Sanitation Commission in Cincinnati. He has been developing waste disposal measures at Procter and Gamble Co. plants . . . Gov. William G. Stratton has appointed **Elmer Knight** acting chief Illinois state highway engineer to replace **Frank N. Barker,** who resigned to become assistant chief engineer of the Santa Fe Railroad. Knight has been serving as assistant chief engineer in the highway division.

• **Elected**—**Herbert G. Johnson** has been elected vice-president in charge of sales of The Kuljian Corp., Philadelphia engineers and constructors . . . **Guy B. Panero,** head of Guy B. Panero Engineers, New York City, has been elected president of the newly organized Rotogarages N. Y., Inc., which has established offices in New York City. The company is planning erection of a midtown mechanical-parking unit there.

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Mass., Worcester—B.A. 10/5—City, City Hall, 20 E. Worcester St., furnish, install refuse incinerator equip. $420,000. Plans deposit $100 refundable. Extended date. Anderson, Nichols & Co., 150 Causeway St., Boston, engrs. CD 9/9.

BIDS ASKED—BUILDINGS

▲ **R. I., Providence**—GYMNASIUM—B.A. 10/6—At office Eggers & Higgins, archts., 542 Fifth Ave., New York, N. Y., 2 story, bsmnt., 190x235 ft. cinder block and red brick and limestone trim gymnasium rear Harkness Hall, for Providence College, Rev. Robert J. Slavin, pres., River Ave., Providence, R. I. $2,000,000. CD 8/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta,
Lee Brothers, Albion, Me. CA **$212,342.** bit. grav. road 6.142 mi. F.A.S. Proj. S 0210 (5), State Aid Proj. No. 1, Unity. Bids Sept. 9. CD 9/4.
Samuel Aceto & Co., 40 Preble St., Portland, Me., CA **$100,000.** constr. and erect 3 complete T Bar ski lifts, Newbury, Franconia Co., NEW HAMPSHIRE. State Dpt. P. Wks. & Hys., State House Annex, Concord, N. H.
MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Bradford Weston, Inc., 116 Rockland St., Hingham, Mass. LB **$131,289,** est. $150,000. hy. work Adams St., Quincy;
L. Romano Constr. Co., 2327 Pawtucket Ave., East Providence, R. I. LB **$151,790,** est. $186,000. hy. work Hathaway Rd., New Bedford. Bids Sept. 8. CD 8/26.
RHODE ISLAND—State Div. Purchases, State House, Providence,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Hillsgrove, R. I., CA **$94,788,** resurf. roads, Pawtucket. Bids Aug. 17. CD 8/13.

BUILDINGS

LOW BIDS AND CONTRACTS

Millinocket Community Hospital, Maine Ave., Millinocket, Me., rejected bids Sept. 3, HOSPITAL, Knox and Poplar Sts., MILLINOCKET, ME. Est. **$600,000.** Will re-advertise. CD 8/25.
Chizer Bros., c/o Kane & Fairchild, archts., 734 Asylum Ave., Hartford, Conn. Owner Builds. **$400,000.** APARTMENT, twenty-nine 2 story bldgs., 116 units, High St., EAST HARTFORD, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **N. Y., Cape Vincent**—DOCK RECONSTR.—B.A. 9/28—Fish & Wildlife Service, U.S. Dpt. Interior, 59 Temple Pl., Boston 11, Mass., reconstr. dock at U.S. Fish Cultural Station, Inv. No. FW 5-1924.
New York and New Jersey—TUNNEL—B.A. 10/14—At office Chief Engineer of The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., Contr. LT-160.006, river tunnel, New Jersey Rock Tunnel and Ventilation Shaft for Third Tube of Lincoln Tunnel. Plans deposit $100. CD 3/12/51.

BIDS ASKED—BUILDINGS

▲ **N. J., Newark**—HOSPITAL—B.A. 10/6—Director Dpt. P. Affairs, Council Chamber, City Hall, 17 story hospital, misc. other constr. $10,000,000. Plans deposit $100. Ziegler, Childs & Paulsen, 921 Bergen Ave., Jersey City, N. J., archts. CD 8/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
The Westcott Constr. Co., 52 N. Washington St., North Attleboro, Mass., LB **$990,708,** grading, paving and foundation;
Phoenix Bridge Co., Bridge St., Phoenixville, Pa. LB **$1,458,215,** steel superstructure for constr. of six-span 776 ft. Thruway viaduct over New York Central's tracks, near Herkimer, Herkimer Co. Bids Sept. 10. CD 8/3.
Nassau Mascali Constr. Co., Asbry Ave., Garden City, N. Y., LB**$948,571,** grading, regrading, curbing, recurbing, laying sidewalks, relaying sidewalks, paving, retaining walls, malls, drainage facilities, grade separation structure at Manton St., etc. in Main St. from Queens Blvd. to Grand Central Parkway, Queens Boro, NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids Sept. 9. CD 8/19.
Anderson Constr. Co., Inc., 615 E. Jericho Turnpike, Huntington Station, N. Y., LB **$67,989,** relocate hangar, Long Island Agricultural & Technical Institute, Spec. 17866, FARMINGDALE, N. Y. Bureau Contracts & Supply, Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 3. CD 8/31.
Romeo Biscaro, 215 Willow Rd., Dunkirk, N. Y., LB **$224,289,** imprv. grounds, Administration, Classroom, Library Bldg. No. 1, Central Heating Plant Bldg. No. 52 and Music Bldg. No. 2, State Teachers College, Spec. 18,022. FREDONIA, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 3. CD 8/13.
Chester Cronquist (Croye Constr. Co. & Fred Carideo), 9 W. Prospect Ave., Mount Vernon, N. Y., CA **$135,789.** Contr. No. 714, constr. Palmer Avenue Bridge on northbound drive of Saw Mill River Parkway, YONKERS, N. Y. Westchester Co. Dpt. P. Wks., County Office Bldg., White Plains, N. Y. Bids Sept. 1. CD 8/20.
▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,
Reid Contg. Co. Inc., P. O. Box 215, Woodbridge, N. J., LB, **$1,590,044,** paving 12.7 mi. Section 82 of Garden State Parkway, from State Route 9 to County Route 524N, Lakewood and Wall Twps., Ocean and Monmouth Counties. Bids Sept. 10. CD 8/26.
▲ **J. Rich Steers, Inc.,** 17 Battery Pl., New York 4, N. Y., CA **$4,393,200,** Alt. B, prestressed concrete, Pier C at Hoboken-Port Authority Piers, Contr. HP 110-0.2, HOBOKEN, N. J. The Port of New York Auth., 111 8 Ave., New York 11, N. Y. Bids Aug. 25. CD 8/27, under LB.
PENNSYLVANIA State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
J. Riley & A. R. Eddy, 278 W. Greene St., Waynesburg, Pa., CA **$79,998,** I-beam bridge and build approaches 0.15 mi. over Big Buffalo Creek to replace a covered wooden bridge, L.R. 62111, Washington Co. Bids Aug. 21. CD 8/7.
▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Williams Constr. Co., Inc., Box 145, Baltimore, Md. LB **$1,354,080,** grading, pipe culvert installation on 3.73 mi. U. S. Rte. 240 relocation, near Clarksburg, Contr. M 383-1-315, Montgomery Co.;
E. B. Plummer & Son, Chambersburg, Pa. LB **$281,391,** grading, drainage surf. 1.945 mi. Rte. 27, near Damascus, Contr. M 440-1-315, Montgomery Co. Bids Sept. 8. CD 8/28.
Town, North Beach, Md., rejected bids June 26. sewerage pumping sys. station, sewers, NORTH BEACH, MD. LB **$546,499.** Project postponed indefinitely. CD 7/15, under LB.
Leo Butler Co., College Park, Md. LB **$249,742.** interceptor sewerage sys. between Pleasant Hills and Newport Heights, WILMINGTON, DEL. New Castle Co., Public Bldg., 11 and King Sts., Wilmington, Del. Bids Sept. 8. CD 8/21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **D. M. W. Contg. Co. Inc.,** 2508 Fulton St., Brooklyn, N. Y., LB **$2,047,000,** general and foundations;
H. Sands & Co. Inc., 11 Park Pl., New York, N. Y. LB **$363,500,** heating and ventilating for Brevoort HOUSES Proj. No. NY-5 17, Sect. II, incl. Bldgs. 7 to 13 inclusive, located in area bounded generally by Bainbridge St., Ralph Ave., Marion St., and Patchen Ave., BROOKLYN, N. Y. New York City Housing Auth., 63 Park Row, New York 38, N. Y. Bids Sept. 9. CD 8/19.
▲ **W. E. O'Neill Constr. Co.,** 403 Wilson Bldg., Syracuse 10, N. Y., LB **$1,614,336,** general constr. Agricultural ENGINEERING BLDG., New York State College of Agriculture at Cornell University, ITHACA, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Aug. 20. CD 7/23.
▲ **Palmer Terrace Apartments,** c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn 2, N. Y. Owner Builds. **$1,900,000.** co-operative APARTMENT for 192-families, 9-acre tract, Palmer, Rockland and Delancy Aves., MAMARONECK, N. Y.
Bd. Comrs. Sanitary Dist., West Hempstead, N. Y., rejected bids Sept. 1, GARAGE, LOCKER ROOM addn. to incinerator bldg., WEST HEMPSTEAD, N. Y. CD 8/21.
▲ **George A. Fuller Co.,** 597 Madison Ave., New York 22, N. Y. CA **$2,200,000.** OFFICE, 508-14 Fifth Ave., NEW YORK, N. Y. Manufacturers Trust Co., 55 Broad St., New York 4, N. Y. CD 4/24.
▲ **Upland, Inc.,** 4625 Edmonson Ave., Baltimore, Md. Owner Builds. **$1,106,000.** Seventy 1 story, masonry frame HOUSES, Green Meadows Parkway, Edenvale, Nymount and Deancroft Rds., BALTIMORE, MD. CD 7/27.
▲ **Marion J. Nasco & Son,** 3201 N. Charles St., Baltimore, Md. CA **$1,000,000.** 2 story, bsmnt., steel, rein.-con., masonry Belvedere SHOPPING CENTER, Belvedere Ave. and Hillen Rd., BALTIMORE, MD. Nuova Realty Corp., 3201 N. Charles St. Baltimore, Md. CD 5/26.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

WEST VRGINIA—B.A. 10/6—West Virginia Turnpike Comn., 1340 Wilson St., Charleston, Zone 5,
Mercer and Kanawha Counties—rein.-con. bridge deck on steel superstructure of 3 major bridges and incl. erecting pipe railing, placing anchor bolts for lighting standards, furnishing, installing lighting conduits and pull boxes on 2 of bridges and incidental constr., Bluestone River Bridge, located at about Mile 9 near Eads Mill in Mercer Co., The Fourmile Fork Bridge is located at about Mile 68 near Standard, and the Kanawha River Bridge is located about Mile 85 near Reed, both in Kanawha Co., Contr. No. 37, 37A, 37B, 37C, Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., consult. engrs., adv. ENR 9/24. CD 4/30/52, under Streets and Roads.
Fla., St. Petersburg—B.A. 10/14—City, City Hall, water supply imprvs. $100,000. Plans deposit $25. Greeley & Hansen, 220 S. State St., Chicago, Ill. engrs. CD 4/16/52.
Fla., Daytona Beach—B.A. 10/22—Volusia Co. Commission, Court House, Daytona Beach, replacing South Bridge over Halifax River, $800,000.: Reynolds, Smith & Hills, 227 Park St., Jacksonville, engrs. CD 9/10/52.

BIDS ASKED—BUILDINGS

Ga., Atlanta—CONVENT—B.A. 9/30—Co-Cathedral of Christ the King, 810 Simpson St. N.W., convent, $350,000. Abreu & Robeson, 141 Walton St. N.W., archts.
Ga., Camilla—SCHOOL—B.A. 10/1—Mitchell Co. Bd. Educ., Camilla, elementary and high school, $500,000. Plans deposit $50. Extended date. Albany Architects & Engineers, P.O. Box 1778, Albany, archts. CD 8/27.
Ga., Statesboro—HOSPITAL—B.A. 10/1—Bullock Co. Hospital Auth., Statesboro, hospital addn. $400,000. Plans deposit $50. Wm. J. J. Chase & Assoc., Candler Bldg., Atlanta, archts. CD 11/3.
N. C., Raleigh—MAINTENANCE, WAREHOUSE—B.A. 10/1—Carolina Power & Light Co., 336 Fayette St., maintenance-warehouse bldg. $200,000. Plans deposit $50. F. Carter Williams, 133 Fayetteville St., archt.
Ga., Statesboro—HOSPITAL ADDITIONS—B.A. 10/8—Bulloch Co. Hospital Auth., Statesboro, hospital addn., $750,000. Plans deposit $50. Extended date. Wm. J. J. Chase & Assocs., Candler Bldg., Atlanta, Ga., archts. Extended date. CD 9/14.
Ga., Douglas—DORMITORY—B.A. 10/9—Bd. Regents University System of Georgia, 20 Ivy St. S. E.,

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviowed except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Medium sized Sauerman Slackline Cableway, installed in 1928, has dug and moved many hundred thousand cubic yards of gravel from this pit to the screening plant with minimum expense for labor, power and repairs. Still good as new after 24 years' service, the machine continues to maintain its rated capacity.

SAUERMAN

Slackline Cableway Excavators

Long-reaching Sauerman Slackline Cableway Excavators stretch out across water, bog, sludge, or deep pits to pick up a load practically at finger-tip command. Only one man—sitting in a comfortable operating station overlooking the work site—is required to dig, haul, lift, and dump in a perfectly controlled non-stop cycle. Need for sending men and equipment to soft surface areas or hazardous locations is eliminated. A single machine, operated from a safe position, does the complete job quickly and efficiently.

From an economy standpoint, the one-man Sauerman Slackline Cableway is unsurpassed in its field of use. Labor and equipment costs are held to a bare minimum. Simplicity of design, plus the fact that only the most expendable parts come in contact with the material handled results in exceptionally low maintenance costs. Power consumption, gasoline, diesel, or electric, is moderate. All these facts add up to greater efficiency, speed, and economy.

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532 S. Clinton St., Chicago 7, Ill.

ONE MAN MATERIALS HANDLING **SAUERMAN BROS., INC.**

NEW IDEAS

EXCAVATING UNDERWATER WITH TRACTOR
Cleaning under bridges, culverts, canals, with tractor-scraper. EFR 209

INCREASING DRAGLINE CAPACITY 50%
How to increase capacity of boom machines from 50 to 300%, and range up to 400 feet. EFR 219

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Building up lake and sea shore property ready for landscaping at low cost without dredges. EFR 211

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At long last—a simple, economical method of cleaning ponds without draining. EFR 213

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High-production method for excavating steep faces with no danger from slides. EFR 202

TWO NEW METHODS OF STRIP MINING
Removing overburden and pulling back into long stable slope all in one cycle. EFR 210, 203

DIGGING GRAVEL 65 FEET UNDERWATER
Taking gravel from pit 65 feet below water level, moving 500 feet to processing plant. EFR 214

ROBOT RECLAIMS FROM STORAGE PILES
This machine picks up, transports, and dumps automatically, alone and untended. EFR 225

DIGGING HARD-PACKED MATERIAL
Taking tightly-consolidated rock and gravel out of pit 85 ft. below water. EFR 216

REVETTING BANKS FROM MIDSTREAM
Floating towers and dragline grade banks, construct levees at minimum cost. EFR 103

REQUEST BY NUMBER — SAUERMAN BROS., INC. 532 S. Clinton St., Chicago 7, Ill.

Atlanta, men's dormitory at South Georgia College. $300,000. Plans deposit $50. CD 7/2/52.

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Fla., Melrose—TELEPHONE LINES—Santa Fe Telephone Co., Melrose, soon lets contract 97 mi. telephone lines in Alachua and Marion Counties, $100,000. J. B. McCrary Eng. Corp., Atlanta Federal Savings Bldg., Atlanta, Ga., engrs.

SOON LETS CONTRACT—BUILDINGS

N. C. Stoneville—PLANT—Baxter, Kelly & Faust, Inc., Stoneville, soon lets contract plant addn. $100,000. The McPherson Co., 408 S. Main St., Greenville, S. C., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

E. C. White, 1020 W. 39 St., Norfolk, Va., LB $74,180. street imprvs., paving, sidewalks and curb and gutter, Granby Shores, NORFOLK, VA. City, City Hall, Norfolk, Va. Bids Sept. 4. CD 7/30/52.

† R. P. Farnsworth & Co., 1515 S. Salcedo St., New Orleans, La., CA $988,000. exten. battery overhaul shop, U. S. Naval Shipyard, NOY 75260, CHARLESTON, S. C. P. Wks. Officer, Bldg. No. 12, U. S. Naval Base, Charleston, S. C. Bids Sept. 3. CD 9/9, under LB.

Halsema Bros., Inc., 1250 N. W. 74 St., Miami, Fla. CA $113,967, swimming pool in Edison Center Park, MIAMI, FLA. City, Div. Eng., 3332 Dinner Key Dr., Miami, Fla. Bids Sept. 2. CD 8/25.

Logan Constr. Co., 102 N. 13 St., Tampa, Fla. CA $61,998. swimming pool in Wildwood Park, ST. PETERSBURG, FLA. City, Municipal Bldg., St. Petersburg, Fla. Bids Aug. 27. CD 8/13.

M & W Constr. Co., Tupelo, Miss. CA $86,781. water mains, JACKSON, MISS. City, City Hall, Jackson, Miss. Bids Sept. 4. CD 8/25.

Cook Constr. Co., P. O. Box 1151, Jackson, Miss. CA $144,400. grading, paving 9.392 mi. county hy. between Arkabutla and Coldwater, SENATOBIA, MISS. Bd. Supervs. Tate Co., Senatobia, Miss. Bids Sept. 2. CD 8/18.

† R. G. Brown Jr., Louisville, Miss. LB $202,020. clearing reservoir, Parcel I, for Demopolis Dam, Demopolis, ALABAMA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala.

† E. A. Caldwell, P. O. Box 1327, Baton Rouge, La. CA $46,875. 37,000 cu. yd. embankment on west bank of Mississippi River, Orleans Parish, Inv. 54-32, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Sept. 2. CD 8/18.

▲ Rust Engineering Co., Exchange Bldg., Birmingham, Ala. CA $1,020,030. water treatment plant, etc., CHALMETTE, LA. St. Bernard Parish Water Dist. 1, Chalmette, La. CD 8/25, under LB.

Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. CA $621,250. storm sewers in Lake Terrace Subdivision, NEW ORLEANS, LA. Orleans Levee Dist., Civil Courts Bldg., New Orleans, La. CD 6/26, under LB.

Magnolia Constr. Co., Belzoni, Miss. CA $129,124. swimming pool and bath house, VILLE PLATTE, LA. Town, Ville Platte, La. Bids Sept. 1. CD 8/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ M. T. Broyhill & Sons, N. Quincy St. and N. Military Rd., Arlington, Va. Owner Builds. $5,000,000. 500 brick HOMES, Lee Blvd. and Annandale St., ARLINGTON, VA. CD 9/2/52.

C. W. Hancock & Sons, Lynchburg, Va., CA $300,000. shoe FACTORY, LYNCHBURG, VA. Craddock-Terry Shoe Corp., c/o contractor, S. P. Craighill, Lynchburg, Va., archt.

Virginia Engrg. Co. Inc., 80 Twenty-Ninth St., Newport News, Va., LB. $607,000, S. C. Armstrong Elementary SCHOOL, NORFOLK, VA. Norfolk School Bd., Bank and Charlotte Sts., Norfolk, Va. Bids Sept. 9. CD 8/24.

John W. Brown, Salem Ave., Asheville, N. C. Owner Builds. $420,000. 42 RESIDENCES, ASHEVILLE, N. C.

A. H. Guion & Co., P. O. Box 1188, Charlotte, N. C. LB $472,900, East Buncombe HIGH SCHOOL, ASHEVILLE, N. C. Buncombe Co. Bd. Educ., Court House, Asheville, N. C. Bids Sept. 1. CD 8/19.

W. E. Dale Constr. Co., P. O. Box 393, Morganton, N. C. CA $508,500, PHYSICAL EDUCATION bldg., BOONE, N. C. Appalachian State Teachers College, Boone, N. C. Bids Sept. 1. CD 8/12.

First Baptist Church, Gastonia, N. C. rejected bids July 29, 3 story, 30,000 sq. ft. EDUCATIONAL bldg., GASTONIA, N. C. LB $339,745. CD 8/5, under LB.

R. H. Pinnix, P.O. Box 97, Gastonia, N. C., CA $181,300. WAREHOUSE-OFFICE, PICKENS, S. C. Blue Ridge Electric Co-operative, W. Main St., Pickens, S. C. Bids Aug. 27. CD 9/4, under LB.

A. C. Samford, Inc., P.O. Box 1229, Albany, Ga. CA $345,574. HOSPITAL, BREMEN, GA. Bremen Hospital Auth., Bremen, Ga. Bids Sept. 3. CD 8/13.

Fiske-Carter Constr. Co., P.O. Box 480, Greenville, S. C. CA est. $150,000. rug MILL, ROSSVILLE, GA. Cabin Crafts, Inc., Dalton, Ga. Robert & Co. Assoc., 96 Poplar St. N.W., Atlanta, Ga., archts.

A & E Constr. Co., P.O. Box 62, Gainesville, Fla. Owner Builds. $380,000. 38 RESIDENCES, GAINESVILLE, FLA.

John B. Orr, Inc., 485 N.W. 54 St., Miami, Fla. CA Est. $100,000. Maintenance PLANT and GARAGE, NORTH MIAMI, FLA. Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga.

Southern Fruit Co., Pineloch Ave., Orlando, Fla. Owner Builds. $150,000. concentrate PLANT, ORLANDO, FLA.

Winter Park Memorial Hospital, Winter Park, Fla. rejected bids Aug. 25, HOSPITAL, WINTER PARK, FLA. LB $843,900. CD 9/4.

J. Leonard Alley, 4740 Montevallo Rd., Birmingham, Ala., Owner Builds. $400,000. 40 RESIDENCES, BIRMINGHAM, ALA.

Haase Constr. Co., 424 S. Anthony St., New Orleans, La. CA Est. $100,000. WAREHOUSE, NEW ORLEANS, LA. Perdido Corp., c/o contractor.

▲† **Tennessee**—Tennessee Valley Auth., New Sprankle Bldg., Knoxville, awarded contracts for Colbert Steam Plant, Ala., Kingston Steam Plant, Tenn., Shawnee Steam Plant, Tenn., John Sevier Steam Plant, Tenn., Gallatin Steam Plant, Tenn. and misc. Grand total $14,813,009.

COLBERT STEAM PLANT, ALA.

Northeastern Eng. Inc., Chattanooga, Tenn., CA $21,567, switchboards manufactured at Manchester, N. H.

Borden Metal Products Co., Leeds, Ala., CA $191,626, grading, steel decking, stair treads and nosings;

Nashville Bridge Co., Shelby Ave., Nashville, Tenn. CA $65,450, structural steel walkway bridge;

Goodyear Tire & Rubber Co., 1144 E. Market St., Akron, O., CA $123,395, conveyor and bunker sealing belts;

KINGSTON STEAM PLANT, TENN.

Combustion Eng., Inc., American Life Bldg., Birmingham, Ala., CA $54,710, spare parts for generating units;

Tennessee Coal & Iron Div., U. S. Steel Corp., 767 Millbury St., Worcester, Mass., CA $53,613, conductor cable;

Westinghouse Electric Corp., Sharon, Pa., CA $39,140, transformer;

General Electric Co., River Rd., Schenectady, N. Y., CA $3,887,090, turbogenerator;

Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., CA $402,981, transformer and reactor;

Rust Engineering Co., 575 6th Ave., Pittsburgh, Pa., CA $64,475, portion of rein.-con. chimney;

Ingalls Iron Works Co., Inc., 620 Fourth Ave. S., Birmingham, Ala., CA $609,600, structural steel;

Northeastern Eng., Inc., Chattanooga, Tenn., CA $19,233, switchboards;

SHAWNEE STEAM PLANT, TENN.

Philip Carey Mfg. Co., 320 S. Wayne St., Lockland, Cincinnati, O., CA $823,574, installing insulation;

Babcock & Wilcox Co., Sterling Ave., Barberton, O., CA $1,980,468, steam generating units, supplement to original contract. CA $629,250, erection of equipment by boilermakers, supplement to original contract;

JOHN SEVIER STEAM PLANT, TENN.

General Electric Co., River Rd., Schenectady, N. Y. CA $3,887,090, turbogenerator;

Westinghouse Electric Corp., Sharon, Pa., CA $39,886, transformer;

Kirk & Blum Mfg. Co., 3120 Forrer St., Cincinnati, O., CA $179,316, air and gas ducts;

Ingalls Iron Works Co., Inc., 620 Fourth Ave. S., Birmingham, Ala., CA $586,076, structural steel manufactured at Birmingham and Verona, Pa.;

Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., CA $402,981, main transformer and reactors;

GALLATIN STEAM PLANT, TENN.

Westinghouse Electric Corp., 10 High St., Boston, Mass., CA $505,698, forced and induced draft fans;

MISCELLANEOUS

Connors Steel Div., H. K. Porter Co., Inc., 5000 Powell Ave., Birmingham, Ala., CA $50,000, steel.

Tennessee Coal & Iron Div., U. S. Steel Corp., Fairfield, Ala., CA $50,000, steel;

Bethlehem Steel Co., Leetsdale, Pa., CA $145,790, steel towers.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Mich., Detroit—B.A. 10/6—City, J. E. Frawley, pres., Memorial Hall Comn., Civic Center pumping station, furnish, install electric motor driven pumps, 4 with rated capacity 4,400 gal. per min., against 145 ft. head, 1 with capacity 1,450 gal. per min. against dynamic head of 145 ft., Contr. MH-20A. Plans deposit $10 refundable, George R. Thompson, city engr. CD 11/11.

† **Wis., Madison**—CONTROL TOWER, etc.—B.A. 10/6—U. S. Eng., 428 Federal Bldg., Milwaukee. Zone 1, control tower, auxiliary bldg., airfield lighting control sys., water supply sys., sewage disposal sys. and driveway Truax Air Force Base, Serial No. ENG-47-013-54-3. CD 9/8.

Mich., Detroit—Bids Asked—Detroit Edison Co., 2000 Second Ave., concrete grade crossing separation, River Rouge, $60,000.

BIDS ASKED—BUILDINGS

▲ **Mich., Flint**—PLANT—Bids Asked—Chevrolet Motor Div., General Motors Corp., 3044 West Grand Blvd., Detroit, 1 story, masonry, steel stamping plant, $6,000,000. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, engr.-archt. CD 7/14.

SOON LETS CONTRACT—BUILDINGS

▲ **Mich., Detroit**—WAREHOUSE OFFICE—Parke-Davis & Co., Joseph Campau St. at River, soon lets contract, 2 story, brick, steel warehouse-office, Adair and Jefferson Sts. $1,000,000, Harley, Ellington & Day, 153 E. Elizabeth St., archts. CD 12/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

OHIO—State Hy. Dpt., Columbus, cancelled bids to have been opened Sept. 4, Type T-35, B-70 and structures 0.965 mi. USR 23-(10.17-10.76), AA-11 (7), Scioto Co. CD 8/24.

† **D. C. Loveys Co.,** 1430 Massachusetts Ave., Cambridge, Mass., CA $556,787, expansion of production facilities, Ravenna Ordnance Plant, Inv. ENG-46-022-54-1, APCO,

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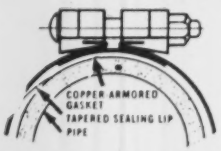

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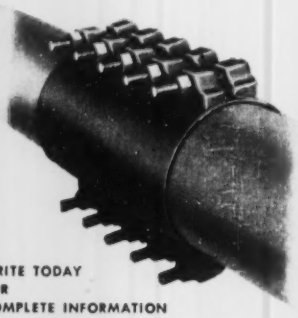

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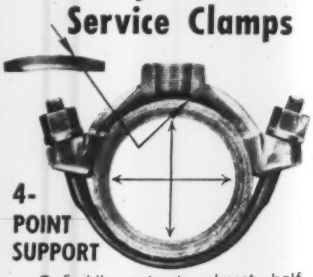

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GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids July 22. CD 7/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **M. W. Kellogg Co.**, 225 Broadway, New York, N. Y. CA design and construct CATALYTIC REFORMER at refinery, HEATH, O. Pure Oil Co., 35 E. Wacker Dr., Chicago, Ill.

▲ **Bethlehem Steel Co.**, E. 3 St., Bethlehem, Pa., CA **$10,695,445**, furnish, paint and erect structural steel for gaseous diffusion PROCESS PLANT, (Subcontractors under Peter Kiewit Sons' Co., P. O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. D. C. PIKETON and WAKEFIELD, O. CD 8/13/52, under CA.

† **Tunnicliff Constr. Co.**, 1701-1705 Second Ave., Rock Island, Ill. CA **$358,274**. BRASS RECLAMATION BLDG., Savanna Ordnance Depot Proving Ground, ENG-11-117-54-1, SAVANNA, ILL. U. S. Eng., Clock Tower Bldg., Rock Island, Ill. Bids Aug. 14. CD 7/22.

▲ **Houseman-Spitzley Corp.**, Washington Blvd. Bldg., Detroit 26, Mich. Owner Builds. **$2,000,000**. Bloomfield Heights DEVELOPMENT 200 acres, Lone Pine and Franklin Rds., BLOOMFIELD HILLS, MICH. CD 7/29.

Bird Gas Corp., 12820 Evergreen St., Detroit, Mich. Owner Builds. **$94,000**. 1 story, masonry WAREHOUSE, Evergreen St., DETROIT, MICH.

▲ **J. A. Utley Co.**, 723 East Ten Mile Rd., Ferndale, Mich. CA est. **$2,000,000**. brick, steel, concrete OFFICE to house Blue Cross and Blue Shield personnel, remodeling 5 story bldg., adding 2 top story, 441 E. Jefferson St., DETROIT, MICH. Michigan Medical Service, 234 State St., Detroit, Mich., Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, Mich., archts.

Kileen & Willie Constr. Co., 1402 Poplar Ave., Superior, Wis. CA **$690,960**. 4 story, bsmnt., brick, steel St. Mary's HOSPITAL, MARQUETTE, MICH. Sisters of Third Order St. Francis, c/o Foeller, Schober, Berners, Safford & Jahn, archts., 310 Pine St., Green Bay, Wis. Bids Aug. 11, awarded Sept. 8. CD 8/26, under LB.

H. M. Seldon Co., 10991 Gratiot St., Detroit, Mich. Owner Builds. **$450,000**. 1 story face brick HOUSES, GROSSE POINTE WOODS, MICH.

Edwin S. Smith, Inc., 1310 Wayne Rd., Wayne, Mich. Owner Builds. **$550,000**. 1 story, 24x32 ft., single HOUSES, Hazelwood, Glenwood and Palmer Sts., WAYNE, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† **North Dakota**—B.A. 10/15—U. S. Eng., Fort Lincoln, Box 300, Bismarck, excavation and main embankment, Stage V, Garrison Dam and Reservoir, Missouri River, Riverdale. Serial No. CIVENG-32-015-54-16. CD 8/27.

† **Kansas**—B.A. 10/20—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnish, del. f.o.b. cars at shipping point or f.o.b cars Stockton, high pressure gates with two 49,000 lb. hydraulic hoists, 3 transitions, semiautomatic gate hanger, 2 standard shoulder eyebolts for outlet works at Webster Dam, Solomon Division, Webster Unit, Missouri River Basin Proj., Spec. DS 4039, L. N. McClellan, ch. engr. CD 11/18.

Mo., Eureka—SWIMMING POOL—Bids Asked—Beaumont Scout Reservation, c/o Morton D. May, chmn. Camp Development Comn., of St. Louis Boy Scout Council, Chemical Bldg., 721 Olive St., St. Louis, Zone 1, (selected list bidders) rein.-con., swimming pool at camp on U. S. No. 66 and Antire Rd. between Eureka and Valley Park, $75,000. CD 5/28.

BIDS ASKED—BUILDINGS

Tex., Corpus Christi—HIGH SCHOOL—B.A. 10/7—Sisters of Incarnate Word & Blessed Sacrament, c/o Mother Patricia, 503 Last St. Senior High School, $600,000. Bid date changed. Wade-Gibson & Martin, Med. Prof. Bldg., archts. H. P. McElhaney, Wilson Tower, and T. A. Vernor, 304 Green Ave., Taft, engrs. CD 9/10.

▲ **Tex., Grapevine**—PLANT, etc.—Bids Asked—Keasby & Mattison, Amber, Pa., main plant for mfg. asbestos products. $650,000; warehousing, $175,000; equipment and maintenance repair shop, $100,000. CD 6/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Pentzien, Inc.**, 1504 Dodge St., Omaha 2, Neb., CA approx. 2.6 mi. oil pipe line, incl. the Missouri River crossing;

J. L. Cox & Son, Blue Ridge and Raytown Rd., Kansas City, Mo., CA, pipe hauling and stringing on 202 mi. section of oil pipe line from Mandan, NORTH DAKOTA to Moorhead, MINNESOTA. Standard Oil Co. of Indiana, 910 S. Michigan Ave., Chicago, Ill. CD 4/30.

Woermann Const. Co., 3800 W. Pine Blvd., St. Louis 8, Mo. CA **$153,200**. combination dining hall and adult leadership training center, EUREKA, MO. Beaumont Scout Reservation, c/o Morton D. May, chmn. Camp Development Comn. of St. Louis Boy Scout Council, Chemical Bldg., 721 Olive St., St. Louis 1, Mo. CD 5/28.

† **Guy F. Atkinson Co., D/B/A Willamette Iron & Steel Co.**, 2860 N. W. Front Ave., Portland 10, Ore., CA **$473,748**, tainter gate hoist and appurtenances, Garrison Dam, NORTH DAKOTA. U.S. Eng., P.O. Box 300, Fort Lincoln, Bismarck, N. D. Bids May 7. CD 4/16.

Willis Thames & Assoc., 3320 French Dr., Beaumont, Tex., Own Forces. **$90,000**, storm sewer collection lines, BEAUMONT, TEX. CD 5/25.

Willis Thames & Assoc., 3320 French Dr., Beaumont, Tex., Own Forces. **$75,000**, some open ditching and pipe drainage, BEAUMONT, TEX. CD 5/25.

Willis Thames & Assoc., 3320 French Dr., Beaumont, Tex. Own Forces. **$100,000.** some addnl. street constr. and asph. type paving, BEAUMONT, TEX. CD 5/25.

† **Lawless & Alford, Inc.**, 5117 E. 1 St., Austin, Tex., LB **$877,078.** est. $500,000-$1,000,000, hospital, Laughlin Air Force Base. Inv. No. Eng-41-243-54-13. DEL RIO, TEX. U. S. Eng., Box 1229, Galveston, Tex. Bids Sept. 10.

City, City Hall, 900 Brazos St., Houston, Tex., Purchases and Own Forces. **$66,665.** concrete type water mains on portion Crane St.; **$55,000,** some c.i. water mains, Robertson Ave. and Fulton St., HOUSTON, TEX. Lockwood & Andrews, Union Natl. Bank Bldg., Houston, Tex., engrs. CD 2/11.

City, Tyler, Tex. cancelled bids to have been opened Aug. 11, sewage disposal plant, **$525,000.** TYLER, TEX. Wisenbaker, Fix & Assoc., Tyler, Tex., engrs.

† **LeBlanc, Inc.**, 2518 Huldy St., Houston, Tex., LB **$878,698.** est. $750,000-$1,500,000. hospital, Victoria Air Force Base., VICTORIA, TEX. U. S. Eng., Box 1229, Galveston, Tex. Bids Sept. 10.

L. D. Liesinger Constr. Co., Casper, Wyo., LB **$120,834**, WW imprvs., constr. new chlorination bldg. at existing water plant, new chlorination and booster pumping bldg. at existing main storage reservoirs, new booster pumping station in existing distr. sys., CASPER, WYO. City, City Hall, Casper, Wyo. Bids Sept. 3. CD 8/27.

Hoak Constr. Co., 621 63rd St., Des Moines, Ia., CA **$257,385,** est. $425,000. rural distr. lines, Crested Butte, Gunnison Co., COLORADO. Gunnison County Electrical Assn., Crested Butte, Colo. Miner & Miner, 1825 10th Ave., Greeley, Colo., engrs. Awarded Sept. 1. CD 4/29.

C. M. Hanes Constr. Co., 110 W. 13 Ave., Denver, Colo. CA **$127,453.** Bridge Proj. No. 941 on West Mississippi Ave. at S. Platte River, DENVER, COLO. City and Denver Co., City and County Bldg., Denver, Colo. Bids Aug. 26, awarded Sept. 4. CD 8/21.

Pray Constr. Co., Grand Junction, Colo., CA **$34,720,** est. $34,000, water filter plant, RANGELY, COLO. Town, Town Hall, Rangely, Colo., Ripple & Howe, 833 23 St., Denver, Colo., engrs. and archts. Bids Aug. 21, awarded Aug. 28.

† **Witt & Ross, Inc.**, Box 766, Carlsbad, N. M., LB **$49,685,** est. $75,000. Picacho, South Dam, Rio Grande Proj., excavating and 90,000 cu. yd. dam embankment, etc., Spec. DC 5002, Dona Ana Co. NEW MEXICO. Bureau Reclamation, Dpt. Interior, U. S. Court House, El Paso, Tex. Bids Sept. 1. CD 8/10.

BUILDINGS

LOW BIDS AND CONTRACTS

Charles F. Vatterott & Co., 10259 X St. Charles Rock Rd., St. Ann's 21, Mo. Own Forces. 200 brick, frame RESIDENCES, Fifth Addn. of St. Ann Hills subdivision on east side of Ashby Rd., OVERLAND (ST. LOUIS 14, P. O.), MO.

Sandy Hawthorne, 2475 Gladys St., and **Willis Thames**, 3220 French Dr., Beaumont, Tex. Owner Builds. **$300,000.** 17 frame DWELLINGS, concrete slab fdn.; **$336,000,** 21 dwellings, BEAUMONT, TEX. CD 4/2.

F. A. Nunnelly, Box 1567, San Antonio, Tex., LB **$487,117,** WAREHOUSE, SAN ANTONIO, TEX. Sears, Roebuck & Co., 1409 S. Lamar St., Dallas, Tex. Bartlett Cocke, 3501 Broadway, San Antonio, Tex. archt., W. E. Simpson Co., 945 Milam Bldg., San Antonio, Tex. and Halsey & Royer, Transit Tower, San Antonio, Tex. engrs. Bids Sept. 9.

Charles A. Logeman, Box 2255, San Antonio, Tex., LB **$528,483.** est. $450,000. HIGH SCHOOL, SAN ANTONIO, TEX. Edgewood Independent School Dist., E. E. Arnaud, supt., 525 Cupples Rd., San Antonio, Tex. Bids Sept. 10. CD 8/13.

W. D. Ferguson & Son, Box 446, Brownsville, Tex., CA **$601,300,** HIGH SCHOOL, SEGUIN, TEX. Seguin Independent School Dist., Seguin, Tex. Bids Sept. 4. Awarded Sept. 9. CD 9/9 under LB.

N. G. Petry Constr. Co., 1114 W. 7th Ave., Denver, Colo. CA **$500,000.** 1 story, 50,000 sq. ft. 36x80 ft. on bay, concrete and glass walls, SHOP, DISPLAY and OFFICE BLDG., DENVER, COLO. H. W. Moore Equipment Co., 120 W. 6 Ave., Denver, Colo. Thomas E. Moore, 1765 Sherman St., Denver, Colo., engr. Awarded Sept. 1.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Arizona-Nevada**—B.A. 10/15—Bureau Reclamation, Dpt. Interior, Phoenix, Ariz., furnishing, labor, materials for addns. to ED2, ED4 and Buckeye Sub-stations, Davis Dam Proj. in Pinal and Maricopa Counties near Eloy and Buckeye, Ariz., Spec. DC-4042; adv. ENR 9/24.

† **Washington**—B.A. 12/2—U. S. Eng., 4735 E. Marginal Way, Seattle. Zone 4, indoor-type 3,000 kva 3-phase transformer for Chief Joseph Dam, Bridgeport, Inv. 54-6. CD 12/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **U. S. Eng.**, 4735 E. Marginal Way, Seattle 4, Wash. rejected bids June 4, dredging Duwamish Waterway,

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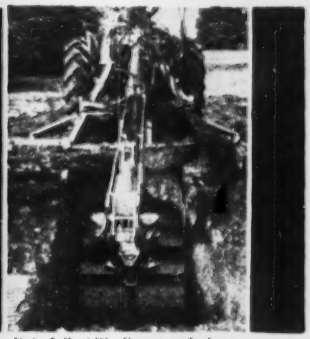

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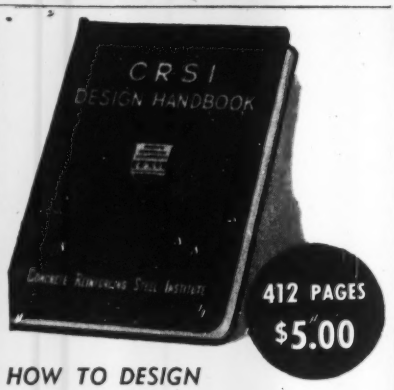

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Inv. 53-70, SEATTLE, WASH. LB $162,540. CD 6/11, under LB.

† **U. S. Eng.**, 4735 E. Marginal Way, Seattle 4, Wash. cancelled bids to have been opened Sept. 1, UHF direction-finding facility ILS middle marker, 2 homer beacons and 1 radar beacon at McChord Air Force Base, ENG-45-108-54-36, TACOMA, WASH. CD 8/17.

† **Arthur A. Hickson & Durbin Bros.**, 6240 McKenzie Hy., Springfield, Ore., CA $53,631, bank protection and channel imprvt. works along right bank of South Santiam River at the Blakeley Location, Linn Co.;

S. W. Groesbeck, 2387 Alder St., Eugene, Ore., CA $57,343, bank protection works along right bank of the Willamette River at Stallbush Island Location, Benton Co., OREGON. U. S. Eng., 628 Pittock Block, Portland 5, Ore. CD 4/21/44.

Pipeline Constr. Co., 2391 Main St., Riverside, Calif., LB, $495,267, East Perris Valley-Romeland Supply Line, HEMET, CALIF. Eastern Municipal Water District, 512 W. Florida St., Hemet, Calif. Bids Sept. 4. CD 3/24/52.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Robert E. McKee, General Contractor, Inc.**, P.O. Box 1706, Santa Fe, N. M., CA $639,700, CHAPEL bldg., POST EXCHANGE, GYMNASIUM, swimming pool and POST THEATER in "E" area, Dugway Proving Ground, Inv. No. ENG-04-203-53-709, 190-, 710 and 711, TOOELE, UTAH. U. S. Eng., P.O. Box 2852, Bldg. 102, Fort Douglas, Utah. Bids July 30. CD 7/9.

▲† **Sound Constr. & Eng. Co.**, 1300 Aloha St., Seattle, Wash., LB $1,278,897, est. $1,344,000, MOTOR STORES bldg., bulk petroleum station, gas service station, fuel storage tanks and interior completion of main shop and dispatcher's bldgs. for consolidated transportation center to serve Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Sept. 8. CD 8/19.

† **Bumstead-Woolford Co.**, 1411 4th Ave. Bldg., Seattle 1, Wash., CA $964,154. POWER PLANT addn., Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Aug. 12. CD 8/19, under LB.

Pigeon Hole Constr. Co., Peyton Bldg., Spokane, Wash., CA $200,000. 5 story automatic PARKING UNIT, SPOKANE, WASH. Seattle-First National Bank, 2 and Cherry Sts., Seattle 4, Wash.

Burch Constr. Co., 707 N. Vine St., Los Angeles, Calif., LB, $547,129, est. $581,000 new elementary SCHOOL on Grandridge Ave., Monterey Park, ALHAMBRA, CALIF., Alhambra School Dist., 601 N. Garfield Ave., Alhambra, Calif. Bids Sept. 8. CD 8/13.

Campbell Constr. Co., 228 E. Transit Ave., Ontario, Calif., LB, $743,732, 4 story, 34,000 sq. ft., HOSPITAL ADDN., POMONA, CALIF. Pomona Valley Community Hospital, 1798 N. Garvey Ave., Pomona, Calif. Bids Sept. 4. CD 8/13.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Val d'Or—HEATING PLANT—B.A. 10/6—Defence Constr. Ltd., 1247 Guy St., Montreal, central heating plant at R.C.A.F. Station. $500,000. Plans deposit $100. M. P. McAndrew, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Consumers Glass Co. Ltd., P.O. Box 456, Station B, Montreal, Que. Owner Builds. $500,000. PLANT addn., Kipling Ave., TORONTO, ONT. CD 9/11.

▲ **Alesius Nagnie**, 591 Beaconsfield Blvd., Beaurepaire, Que. Own Forces. $3,225,000. 150 HOUSES on new street in Beaurepaire, MONTREAL, QUE.

Cite Constr. Ltd., 275 St. Zatique St. W., Montreal, Que. CA $480,000. 105x536 ft. SCHOOL and RESIDENCES, St. Jean Baptiste Blvd., POINTE AUX TREMBLES, QUE. School Comn., R. McDuff, secy., Pointe Aux Trembles, Que. Duplessis, Labelle & Derome, 822 Sherbrooke St. E., Montreal, Que., archts. CD 3/20.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **S. Macri Constr. Co.**, Anchorage, Alaska, CA $565,757, outside utilities for rehabilitation of Sunflower Area No. 1, Elmendorf Air Force Base, Inv. 54-2, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Aug. 26. CD 9/2, under LB.

PUERTO RICO

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Morris & Cumings Dredging Co., Inc.**, 44 Whitehall St., New York, N. Y., LB $543,212, maintenance dredging, Inv. 54-1, Arecibo Harbor, PUERTO RICO. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. CD 7/2.

Proposed Projects

WATER SUPPLY

▲ **Calif., Ontario**—City, City Hall, $1,300,000 bond election Nov. 24, water system imprvs. CD 2/14/52.

Tex., West University—Town, 1 m. g. water reservoir, $135,000.

SEWERS, WASTE DISPOSAL

Calif., Los Angeles—City, City Hall, sanitary sewers in Mannix Dr. and Gould Ave. Sewer District, $102,975.

▲ Calif., Ontario—City, City Hall, $1,300,000 bond election Nov. 24 imprvs. city sewerage system. CD 2/14/52.

Idaho, Coeur d'Alene—City, City Hall, voted $140,000 bonds, first unit of storm sewerage system. CD 11/3/50.

Mich., Waterford—Waterford Twp., Twp. Bd., sewerage sys., incl. disposal treatment plant, $150,000, Johnson & Anderson, 1307 Pontiac State Bank Bldg., Pontiac, consult. engrs.

▲ O., Akron—City, City Hall, $10,000,000 bond election Nov. 3, rehabilitation and enlarge sewage disposal plant at Bostum, est. $5,000,000; addns., imprvs. to trunk sanitary and storm sewers, est. $5,000,000. CD 5/19/52.

Okla., Stillwell—City, voted bonds Aug. 26, sewage disposal plant, $226,000. W. R. Holway, 302 E. 18 St., Tulsa, consult. engr.

Tex., Stamford—City, sanitary sewerage sys. lift station, $60,000; new sanitary sewer lines and some collection sys. rehabilitation work, $65,000. Cecil Hawk & Assoc., 1641 Broadway, Lubbock, consult. engrs.

Wis., Green Bay—Green Bay Metropolitan Sewerage District, Green Bay, sewage treatment plant addn. $900,000. J. Donohue Eng. Co., 608 N. 8 St., Sheboygan, consult. engr. Geo. Martin, c/o owner, staff engr.

Que., Thetford Mines—City, I. Poire, secy., sewers in various streets, $420,000.

STREETS AND ROADS

MONTANA—State Hy. Comn., Capitol, Helena,
Yellowstone Co.—rebuilding, surf. 9 mi. road as state secondary hy. exten. south from Billings $600,000. CD 10/19/45, under Bridges.

Tex., Raymondville—Willacy Co., Raymondville, 4½ mi. 200-ft. wide road by-pass, $400,000; widening road south of here, $200,000.

Tex., San Antonio—Bexar Co., Precinct 1, Dan Traugott, comr., Court House, bond election Oct. 3, constr. 64 mi. new or improved farm to market roadways, $243,000; completion of Southern Leg of Freeway, $140,000; relocation of Loop 13, $70,000; widening New Laredo Hy. and Palo Alto, $90,000. C. I. Swan, co. road engr. CD 7/7.

EARTHWORK, WATERWAYS

▲ Calif., Los Banos—Central California Irrigation Dist., 919 6 St., Los Banos, voted bonds enlarging of canal system, $4,200,000. CD 8/12.

Calif., Redding—Shasta Dam Public Utility Dist., Redding, voted $200,000 bonds, installing electric power lines, new water mains, and 220,000 gal. water tank. CD 8/6.

N. M., Clovis—Runningwater Draw Park Bd., c/o Frank Foster, pres., Clovis, dam and reservoir for recreational purposes. $150,000. Cecil Hawk & Assoc., 1641 Broadway, Lubbock, Tex., consult. engrs.

S. C., Charleston—The Citadel, Col. L. S. LeTellier, actg. pres., Hampton Park, exten. campus by dredging mud from river and filling in marsh lands, $750,000.

▲ Tex., Bellaire—City, City Hall, drainage proj. $1,500,000-$4,500,000. Charles R. Haile & Assoc., 2801 San Jacinto St., Houston, consult. engrs.

▲ Tex., New Braunfels—Guadalupe-Blanco River Auth., Blanco and New Braunfels, flood prevention and power dam, $2,000,000.

Tex., San Antonio—Alamo Soil Conservation Dist., Soil Conservation Dist., c/o Don Windrow, 1111 Halliday St., primarily a flood-prevention and creek bank erosion prevention projs. Dam No. 1, $68,751; Dam No. 2, $68,571; water retention dam, primarily a flood prevention creek bank erosion prevention proj. Dam No. 3, $68,571; Dam No. 4, $68,571; Dam No. 5, $68,571; water retention earthen dam, primarily a flood prevention and Calaveras Creek bank erosion prevention proj., Dam No. 6, $68,571; Dam No. 7, $68,571, all foregoing on Calaveras Creek. R. C. Barnes, c/o owner, consult. engr. starting surveys.

AIRPORTS

▲† Miss., Biloxi—HOSPITAL—U. S. Eng., P. O. Box 1169, 2301 Grant St., Mobile 7, Ala., plans by York & Sawyer, 101 Park Ave., New York, N. Y. hospital at Keesler Air Force Base, $5,000,000. CD 2/7/51.

▲ Mo., Kansas City—AIRPORT—City, City Hall, overhaul base at Industrial Airport, 500,000 sq. ft. main hangar, 120,000 sq. ft. engine overhaul bldg., 160,000 sq. ft. six test cells and stores bldg., operator offices, communications, cafeteria and recreational facilities, $14,351,000, Richard M. Huber, 20 W. 9 St., Kansas City, Mo., ch. Constr. Div., Trans-World Airlines, lessee. CD 8/12/52.

† N. J., Wrightstown—DISPENSARY DENTAL CLINIC, etc.—U. S. Eng., 121 N. Broad St., Phila., Pa., dispensary dental clinic, blood processing center, $500,000, McCormic Lewis & Kopf Assocs., 1321 Arch St., Phila., Pa., consult. engrs. and archts.; navigation aids, $100,000, Sears & Kopf, 13 E. 37 St., New

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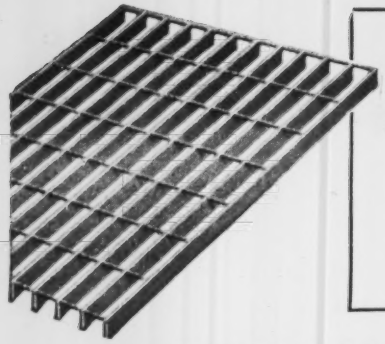

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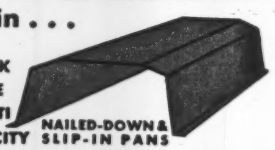

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York, N. Y., consult. engrs. and archts., above work at McGuire Air Force Base. CD 5/9/52.

▲† **Tex., Austin**—RUNWAYS, etc.—U. S. Eng., Box 1229, Galveston, airfield pavement: runways, etc. $845,000; constr. training facilities, bldgs. and appurtenances, $592,000, Bergstrom Air Force Base. CD 1/10/52.

† **Tex., Big Spring**—LIGHTING, etc.—U. S. Eng., 100 W. Vickery St., Fort Worth, airfield lighting, $75,000; water and sanitary sewers, $97,500; aircraft maintenance facilities, $90,000; airfield pavement, $187,500, Webb Air Force Base. CD 8/8/51.

† **Tex., Corpus Christi**—FUEL STORAGE FACILITIES—Corpus Christi Naval Air Station, Naval Base, Corpus Christi, fuel storage facilities. $510,000.

† **Tex., Del Rio**—PAVEMENTS, etc.—U. S. Eng., Box 1229, Galveston, airfield pavements, $200,000; water sys. $40,000; sewers, $66,000; storage or warehousing, $125,000, Laughlin Air Force Base. CD 7/2/51.

† **Tex., Ellington Air Force Base**—PAVEMENT, LIGHTING, etc.—U. S. Eng., Box 1229, Galveston, airfield pavement, $225,000; airfield lighting, $72,500; navigational aids and operational facilities, $200,000. CD 6/29/51.

† **Tex., Harlingen**—SEWERS, PAVEMENT—U. S. Eng., Box 1229, Galveston, sanitary and storm sewers, $65,000; airfield pavement, $98,000, Harlingen Air Force Base. CD 6/26/51.

† **Tex., Kelly Air Force Base**—AIRCRAFT MAINTENANCE—U. S. Eng., Box 1229, Galveston, aircraft maintenance facilities. $216,000. CD 6/27/51.

▲† **Tex., Mission**—PAVEMENT, STORAGE, etc.—U. S. Eng., Box 1229, Galveston, airfield pavement, $325,000; fuel storage and dispensing sys., $100,000; aircraft maintenance shop, $125,000; storage, $150,000; administration and communications bldg. and allied bldgs., $300,000, Moore Air Force Base. CD 6/4.

▲† **Tex., Randolph Air Force Base**—FUEL STORAGE, LIGHTING, etc.—U. S. Eng., Box 1229, Galveston, fuel storage and dispensing facilities, $200,000; airfield lighting, $100,000; administrative bldg. and community bldgs. $350,000; storage or warehousing, $250,000; small repair shop, $100,000, Randolph Air Force Base. CD 5/2/51.

† **Tex., San Angelo**—PAVEMENT, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, asph. pavement imprvs. to strips, $70,000; sewers, $65,000; water sys. imprvs., extens., $35,000, Goodfellow Air Force Base.

▲ **Tex., Sherman**—STORAGE, etc.—U. S. Eng., Box 61, Tulsa 2, Okla., storage or warehousing, $225,000; road constr., $85,000; sewers, $70,000; water sys. $75,000; troop housing and messes, $400,000; aircraft maintenance shop, $350,000; liquid fuel storage and dispensing sys., $150,000, Perrin Air Force Base. CD 6/12.

FOREIGN

▲ **India**—Govt. of India, New Delhi, railroad bridge with raised approach roads, over the Ganges River, at Mokameh, east of Patna, in Bihar, bulkheading river, transshipment yard and railroad. $33,000,000. Foreign contractors will be permitted to bid.

PUBLIC BUILDINGS

▲ **Calif., Centerville**—SCHOOL—Washington Union High School Dist., Box 606, plans by Falk & Booth, 9 Main St., San Francisco, Washington Union High School, $1,000,000. CD 11/6.

▲ **Calif., Concord**—SCHOOLS—Mt. Diablo Unified School District, Concord, $2,100,000 bond election Nov. 3, schools.

Calif., Fallbrook—SCHOOL—Fallbrook Union High School Dist., Fallbrook, $385,000 bond election Oct. 8, high school at Stagecoach Land and Mission Road.

Calif., Fallbrook—SCHOOLS—Palomar Junior College District, Fallbrook, $750,000 bond election Oct. 8 schools.

Calif., Fullerton—PHYSICAL EDUCATION—Fullerton Union High School & Junior College Dist., E. Chapman Ave., physical education bldg. Fullerton Junior College, $500,000. Roscoe L. Warren, 8383 S. Lacanada Ave., Whittier, consult. engr.

▲ **Calif., Redding**—CIVIC AUDITORIUM—Chamber of Commerce, Market and Sacramento Sts., plans by Clayton Kantz, P.O. Box 1718, civic auditorium, $1,500,000.

Colo., Greeley—SCHOOL—School District No. 6, Weld Co., Greeley, plans by Alfred Wats Grant, consult. engr. and archt., 1669 Broadway, Denver, Junior High School, $890,000. CD 4/21.

Conn., New London—SCHOOLS—City, New London, Supt. Schools, 34 Williams St., plans by Fred S. Lamdon, 325 State St., Coelman St. Area Elementary School, $300,000; elementary school, Ocean Ave. below Plant St., $325,000. CD 1/30.

▲ **Ill., Chicago Heights**—SCHOOLS—School District 170, Union Ave., plans by Wm. Nicolai, 62 Illinois Ct., [illegible] eleentary schools and five school addns. $2,000,000. Louis Balluff, 35 E. Wacker Dr., Chicago, Zone 1, assoc. archt.

▲ **Ill., Elmwood Park**—SCHOOL—School District [illegible], 7607 Courtland St., plans by Chas. W. Nicol, 23 E. Jackson Blvd., Chicago, Zone 4, school on site of Oak Park Country Club, $1,600,000.

Ia., Des Moines—WAREHOUSE—Iowa State Liquor Control Comn., E. 7 and Court Sts., plans by Burdette Higgins, 526 Liberty Bldg., warehouse, $500,000. CD 3/30.

Ia., Mason City—COURT HOUSE—CerroGordo Co., Mason City, defeated $550,000 bonds, county court house

addn. Liebenberg & Kaplan, 51 S. 13 St., Minneapolis, Minn., archts. CD 8/14.

Mass., Cohasset—SCHOOL—Town, 143 Pond St., plans by J. Williams Beal & Son, 185 Devonshire St., Boston, elementary school, $325,000.

Mass., Ipswich—SCHOOL—Town, School Dpt., Robert F. Savitt, supt. School Bldg. Comn., 23 Green St., plans by Shepley Bulfinch Richardson & Abbott, 1 Court St., Boston, high school, Rowley Rd. $660,000.

Mass., Salem—COLLEGE BLDG.—State, Dpt. Educ., 200 Newbury St., Boston, plans by James H. Ritchie & Assoc., 135 Clarendon St., Boston, teacher's college bldg. State Teachers College, $950,000. CD 7/26/51.

▲ **Mich., Kalamazoo**—DORMITORY—Western Michigan College, Kalamazoo, 250-room women's dormitory, $1,460,000; 16-family apartment for married students, $800,000, Clair F. Taylor, State Capitol, Lansing, Zone 1, supt. pupb. Instruction.

▲ **Mich., Mount Pleasant**—DORMITORY—Central Michigan College, Mount Pleasant, 250-room men's dormitory, $1,400,000; 8-family apartment, $435,000, Clair L. Taylor, supt. P. Instruction, State Capitol, Lansing, Zone 1. CD 7/14.

Minn., New Richland—SCHOOL—Bd. Educ., B. C. Rotegard, clk., voted $650,000 bonds Aug. 27, school addn., grade school, H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 8/28.

N. H., Plymouth—GYMNASIUM-AUDITORIUM, etc.—State Dpt. P. Wks. & Hys., State House Annex, Concord, plans by Norman P. Randlett, 164 Main St., Laconia, gymnasium-auditorium-music bldg., Teachers College. $337,500. CD 1/29.

▲ **O., Columbus**—SCHOOLS, etc.—Columbus Bd. Educ., 270 E. State St., $14,000,000 bond election Nov. 3, new schools, school addns. and imprvs.

O., Pomeroy—HOSPITAL—Meigs Co., Court House, $500,000. bond election Nov. 2 to acquire site and erect Meigs County Hospital. ,

Pa., New Castle—SCHOOL—School Dist. Auth. of New Castle, New Castle, plans by W. G. Eckles, Lawrence Saving & Trust Bldg., 1 story L-shaped, brick, block grade school, Scott St. $500,000. CD 4/29/52.

Tex., Baytown—SCHOOL—Baytown Independent School Dist., Baytown, addnl. elementary school for Goose Creek, $500,000.

Tex., Farmers Branch—HIGH SCHOOL—Farmers Branch Independent School Dist., Farmers Branch, voted bonds July 24, high school. $350,000. CD 7/30.

Tex., Fort Worth—SCHOOLS—Fort Worth Independent School Dist., Ed. P. Williams, bus. mgr., 409 E. Weatherford St., plans by Joseph R. Pelich, Commercial Standard Bldg., E. M. Daggett Junior High School, 2315 College Ave., $636,850; plans by Robert P. Woltz, Jr., 1030 Seventh Ave., Negro Elementary School in Riverside Addn., $301,000. CD 6/3/52.

Tex., Refugio—HIGH SCHOOL—Refugio Independent School Dist., Refugio, plans by H. E. Kellner, 408 Austin Hy., San Antonio, high school. $450,000.

Ont., Preston—DWELLINGS—Central Mortgage & Housing Auth., 251 King St. W., Kitchener, 25-50 detached rental dwellings. $475,000.

Ont., Toronto—TEACHER'S COLLEGE—Dpt. Public Wks., Parliament Bldgs., plans by Page & Steele, 72 St. Clair Ave. W., 2 story, bsmnt., 180x360 ft., steel, brick teacher's college, Carlaw Ave. $750,000. G. N. Williams, c/o owner, deputy minister, ch. archt. CD 3/19.

Ont., Wingham—SCHOOL—Wingham High School Area Bd., Wingham, plans by J. D. Kyles, 247 John St., Hamilton, high school, $600,000. CD 2/11.

COMMERCIAL BUILDINGS

Ala., Mobile—CLUBHOUSE—Gulf Fishing & Hunting Club, c/o Edward D. Slater, archt., O'Gwynn Bldg., clubhouse, $360,000.

Calif., Duarte—HOSPITAL SERVICE—Hope Hospital, 208 W. 8 St., hospital service bldg. $500,000. Pereira & Luckman, 9220 Sunset Blvd., Los Angeles, consult. engrs.

Calif., Los Angeles—RESEARCH—Childrens Hospital, 4614 Sunset Blvd., plans by Welton Becket & Assoc., 5657 Wilshire Blvd., Los Angeles, research bldg., Sunset Blvd. and Vermont Ave., $800,000. CD 5/11/48.

▲ **Md., Baltimore**—DWELLINGS—Foxcroft, Inc., 16 Park Ave., plans by Hal A. Miller, 2118 Maryland Ave., one hundred and forty-five 2 story, brick, 18x29x28 ft., dwellings, 1700 block, Lydonlea Way, 1700 block Wadsworth Way, 1700 and 1800 block Sherwood Ave. $1,087,500, W. Lloyd Wallace, 3205 Almeda St., consult. engr.

Md., Silver Spring—APARTMENT—Howard Schafer & Assoc., 8005 Wisconsin Ave., Bethesda, plans by Ted Englehardt & Assoc., 919 Pershing Dr., 2 and 3 story, brick, concrete block, steel apartments, incl. 150 units Grubb Rd. $750,000.

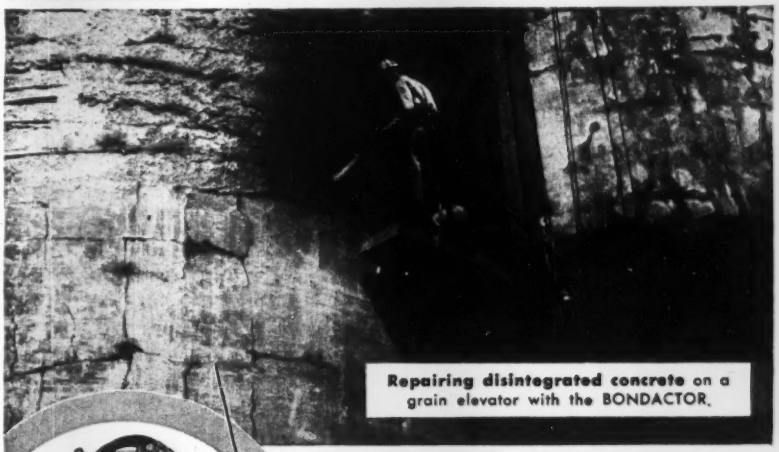
Md., Wheaton—RESIDENCES—Robin Constr. Co., 1433 Northgate Rd. N.W., Wash., D. C., plans by J. A. d'Epagnier, 1004 Ripley St., Silver Spring, forty 1 story, brick, concrete block residences, Viers Mill Rd. $400,000.

Minn., Alexandria—HOSPITAL—Franciscan Sisters of Immaculate Conception, Little Falls, plans by Bettenburg, Townsend & Stolte, 1437 Marshall Ave., St. Paul, hospital. $700,000.

Minn., Minneapolis—LIBRARY—Augsburg College, B. Christensen, pres., 8 St. and 21 Ave. S., library, $400,000.

▲ **N. Y., Brooklyn**—APARTMENTS—Harry & Sidney Waxman, 17 Neptune Ave., Zone 29, plans by Seelig &

ANOTHER BONDACTOR APPLICATION



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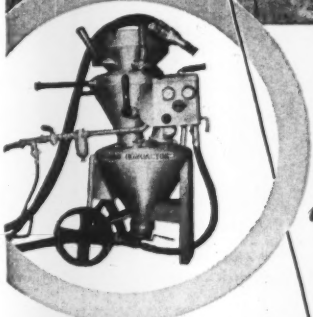

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Finkelstein, 153 Pierrepont St., Zone 2, two 6 story apartments, 711 Montauk Court and 2675-85 E. 7 St. $1,440,000.

N. Y., Rockaway Park—APARTMENT—M & W Barocas, c/o Tito Di Vincenzo, archt., 2 Columbus Circle, New Brooklyn, Zone 2, 6 story apartment, Ocean Promenade and Beach 122 St. $490,000.

▲ N. Y., Yonkers—APARTMENT—Bronxville-Devon Corp., c/o Tito Di Vincenzo, archt., 2 Columbus Circle, New York, Zone 19, apartment, Midland Ave. between Kimball Ave. and New York-Buffalo Thruway. $1,900,000.

▲ Okla., Tulsa—BUILDING—W. H. Helmerich, First Natl. Bldg., plans by Donald McCormick, 2454 E. 34 St., El Pation Bldg., 21 and Utica Sts. $1,250,000.

Pa., Pittsburgh—SHOPPING CENTER—A. M. Holawka, 1037 Edward Dr., 1 story approx. 25,000 sq. ft. brick block shopping center, $350,000.

Pa., Pittsburgh—HOME FOR AGED—Sisters of the Holy Ghost, 5246 Clarwin Ave., plans by A. Pydrowski, 4310 Melwood St., 2 story, bsmnt., brick, block, steel, home for the aged, Ross Twp. $500,000.

▲ Pa., Pittsburgh—HOUSING—Town Development, Inc., 202 Carlton House, 2 story, bsmnt., 400-units, 6 units in a row, brick and block row housing, Greentree. $4,000,000.

▲ Pa., Pittsburgh—HOSPITAL—West Penn Hospital, Friendship Ave., plans by Alfred D. Reid Assocs., 1401 Keystone Bldg., hospital wing addn., alterations, brick and block addn. (wing), renovation of existing bldgs. $3,000,000.

Tex., Austin — SCIENCE — Houston-Tillotson College, Austin, plans by Kuehne, Brooks & Barr, Perry-Brooks Bldg., 40,670 sq. ft. masonry science bldg. $375,000.

▲ Tex., Austin—HOTEL—L. L. McCandless, c/o Niggli & Gustafson, archts., 4303 Avenue F, 1 and 2 story, 102-unit, masonry, frame, Terrace Motor Hotel addn., rein.-con. outdoor swimming pool. $1,000,000.

▲ Tex., Fort Worth—HOSPITAL—All Saints' Episcopal Hospital, c/o Dr. T. C. Terrell, 1500 W. Magnolia St., 252-bed, 8 story, 44x180 ft. masonry, steel, concrete hospital addn. $1,000,000.

Wis., Whitewater—SHOPPING CENTER—Lake LaGrange Corp., Whitewater, shopping center, $750,000.

Man., St. Boniface—HOTEL—Montcalm Hotel Co. Ltd., Marion St., 3 story, bsmnt., concrete, brick hotel, $500,000.

▲ Ont., Eastview—SHOPPING CENTER—Kelldor Corp., Three Rivers, Que., shopping center, Montreal Rd. and Mona St. $1,000,000.

▲ Ont., Ottawa—OFFICE—"Toronto Interests" c/o Burgess & McLean, archts., 53 Queen St., 8 story bsmnt., 100x199 ft. office bldg.; Kent, Albert and Slater Sts. $2,500,000.

▲ Que., Beauport—MENTAL HOSPITAL—Hospital St. Michel Archange, Beauport, plans by Pierre Rimfret 400 Charest Blvd., Quebec City, 2,200 bed mental hospital-Mastoi Hospital addn. $7,000,000. CD 11/12/47.

INDUSTRIAL BUILDINGS

▲ Ill., Chicago—FACTORY—Bodine Electric Co., 2254 W. Ohio St., plans by J. Kadberg & Olsen, 5153 N. Clark St., factory near Western Ave. and Addison St., $1,000,000.

▲ Ill., Chicago—WAREHOUSE—Sunbeam Corp., 5600 W. Roosevelt Rd., plans by Olsen & Urbain, 5 S. Wabash St., Zone 3, 2 or 3 story, 240x363 ft. warehouse, $1,500,000.

Ill., Northfield—FACTORY—Meat Industry & Suppliers, 4432 S. Ashland St., plans by J. H. Marling, 8 S. Michigan Ave., Chicago, Zone 3, 1 story, 45,000 sq. ft. factory $500,000.

▲ Mont., Billings—FLUID COKING UNIT—Carter Oil Co., National Bank of Tulsa Bldg., Tulsa, Okla., commercial fluid coking unit at existing refinery. $3,500,000.

▲ S. C., North Charleston—PLANT—Bird & Son, Inc., 47 Wilson St., East Walpole, Mass., roofing mfg. plant. $2,250,000. Dotterer Eng. Co., 12 Exchange St., Charleston, consult. engr.

Tenn., Henderson — WAREHOUSE, etc. — Southwest Tennessee Membership Corp., Brownsville, plans by Chas. S. Peete, 1596 Madison St., Memphis, warehouse-office $100,000.

▲ Tex., El Paso—STORAGE, etc.—The Texas Co., 1930 E. Paisano Dr., storage bldg. and misc. bldgs. for refinery area, $350,000; addnl. constr. on refinery production unit, $750,000.

Tex., West—MILLS—West Textile Mills, Inc., c/o Horavath Bros., Mercantile Commerce Bldg., Dallas, expansion of textile mills, $200,000.

▲ Va., Quantico—STEAM PLANT—Virginia Electric & Power Co., 7th and Franklin Sts., Richmond 100,000 kw. steam plant addn. at Possum Point near here. $16,000,000. Stone & Webster Engr. Corp., 1403 Roseneath Rd., Richmond, consult. engrs. CD 9/9.

Wis., Madison—FACTORY—H. Disston & Sons, Inc., Unruh and Milnor Sts., Phila, Pa., plans by F. J. Schweitzer, 316 E. Silver Spring Rd., Milwaukee, Zone 11, 1 story, 100,000 sq. ft. chain saw factory, $200,000. R. J. Strass, 225 E. Michigan St., Milwaukee, Zone 2, consult. engr. CD 9/3.

Ont., Richmond Hill—MILL—Ratcliffe Canada Ltd., Tipton, England, rolling mill, $300,000.

▲ Ont., Sarnia—FOUNDRY—Holmes Foundry Co. Ltd., 200 Exmouth St., foundry expansion, $1,000,000. Giffels & Valet of Canada Ltd., Canada Trust Bldg., Windsor, consult. engrs.

▲ **Ont., Toronto**—PLANT—Consumers Glass Co. Ltd., 2 Ave., Ville St. Pierre, Montreal, Que., glass plant, Kipling Ave., Etobicoke Twp., Toronto Suburbs, $3,000,000.

UNCLASSIFIED

Alabama—RURAL DISTRIBUTION LINES—Pea River Electric Co-operative Ozark, 119 mi. rural distr. line and sys. imprvs., Barbour Co. $365,000.

▲ **California**—RURAL DISTRIBUTION LINES—Death Valley Electric Co-operative, Baker, 179 mi. rural distr. lines and 116 mi. 69 kv. transmission lines, Inyo and San Bernardino Counties, $2,035,000. CD 11/23/49.

Calif., Oakland—SWIMMING POOL—Oakland Recreation Comn., 21 12 St., plans by Irwin Johnson, 449 W. MacArthur Blvd., outdoor swimming pool near Oakland High School. $173,000. CD 2/5/45.

Georgia—RURAL DISTRIBUTION LINES, etc.—Little Ocmulgee Electric Membership Corp., Alamo, Ga., 15 mi. rural distr. line and sys. imprvs., Telfair Co. $365,000.

Georgia—RURAL DISTRIBUTION LINES, etc.—Middle Georgia Electric Membership Corp., Vienna, 70 mi. rural distr. line and sys. imprvs., Dooly Co. $150,000.

Illinois—HEADQUARTERS FACILITIES—Eastern Illinois Power Co-operative, Paxton, headquarters facilities, Iroquois Co. $220,000. CD 8/27/52.

Kansas—RURAL DISTR. SYSTEM IMPRVS.—C. & W. Rural Electric Co-operative, Clay Center, sys. imprvs., 38 mi. tie lines, headquarters, Clay Co., $275,000. Richardson Electric Eng. Co., Solomon consult. engr.

Minnesota—RURAL DISTRIBUTION LINES—Wild Rice Electric Co-operative, Mahnomen, 100 mi. rural distr. lines, sys. imprvs., Becker Co. $600,000. CD 11/15/51.

▲ **Mo., St. Joseph**—LIGHTING SYSTEM—City, City Hall, revamp city lighting sys. $1,000,000. A. C. Kirkwood & Assoc., 3102 Troost St., Kansas City, Mo., consult. engrs. CD 4/23.

N. Y., Brooklyn—COMFORT STATION, etc.—Dpt. Parks, Arsenal Bldg., New York, 2 story comfort station and playground, 3801-23 Avenue J. $150,000. Gustave Chirlian, c/o owner, consult. engr.

Ohio—RURAL DISTRIBUTION LINES—Northwestern Electric Co-operative, Bryan, 36 mi. rural distr. lines and sys. imprvs., Williams Co. $250,000.

Texas—RURAL DISTRIBUTION LINES—Fort Belknap Electric Co-operative, Olney, 50 mi. rural distr. lines and sys. imprvs., Young Co. $110,000.

Texas—TELEPHONE SYSTEM—Guadalupe Valley Telephone Co-operative, Smithsons Valley, rural telephone sys. imprvs., line and sys. rehabilitation and new lines, Smithsons Valley. $611,000.

Tex., Brownwood—LIVESTOCK EXHIBITION, etc.—Brownwood Livestock Assn. Inc., Brownwood, livestock exhibition and arena, 22½-acres: $150,000.

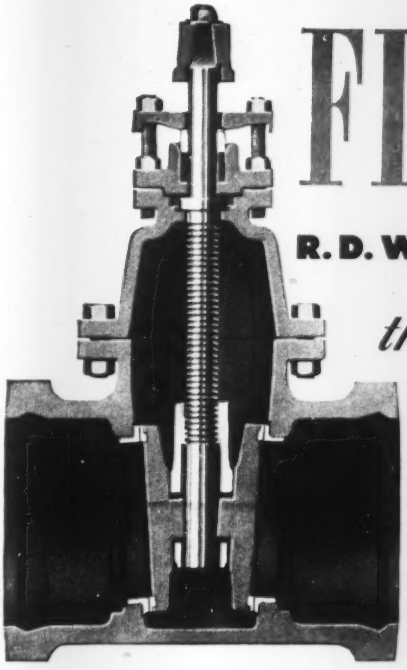
Tex., Houston—COLISEUM—City, City Hall, 900 Brazos St., remodeling program for existing coliseum. $875,000. Robert Cummins, Bankers Mortgage Bldg., and Dale S. Cooper & Assoc., 420 Sull Ross St., consult. engrs.

▲ **Tex., Houston**—WORLD'S FAIR—Houston World's Fair, Inc., c/o Dr. W. W. Kermerer, pres. University of Houston, 3801 Cullen Blvd., World's Fair (1956), buildings, appurtenances, incl. 100,000 seating capacity colistadium, swimming pool, club-houses, etc. 935-acre site adjacent to San Jacinto Battleground. $10,000,000.

Tex., Nixon—LIGHTING and POWER SYS.—J. F. Wheeler, mayor, Nixon, electric lighting, power sys. $400,000.

Tex., San Angelo—FAIR GROUNDS REVISION—City, City Hall, revision of fair grounds, incl. barn, exhibit bldg., some grading, drainage. $100,000. Max D. Lovett, 1320 Colorado St., archt.

Washington—RURAL DISTRIBUTION LINES—Inland Empire Rural Electrification, Inc., E. 325 Sprague St., Spokane, 50 mi. rural distr. line to serve 155 new customers, Spokane, Whitman, Garfield, Stevens, Adams, Asotin and Columbia Counties. $410,000. CD 7/11/50.



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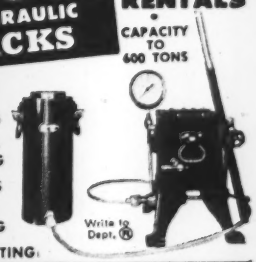

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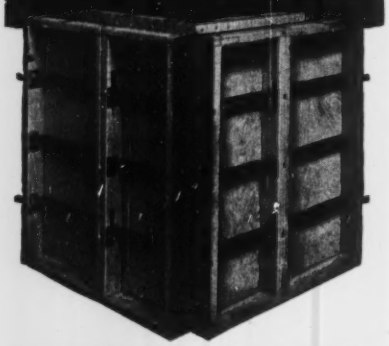

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UNIT PRICES

Street paving, Texas

A contract opening a new section of street will enable the Houston, Texas, Traffic Engineering Department to add two, one-way, north-south streets to the system at right angles to the new addition. J. M. Nagle is the director of public works and W. A. Ortolani, the paving engineer.

The job was awarded to Gulf Bitulithic Co., who entered the lowest of five bids at $81,361. Bidding was tight, with less than 2% separating the four bottom bids. The large jump came between the high and second high bids which were separated by 12%.

After the area is cleared, grubbed, and excavated, the roadway will be coated with a cement stabilized, shell base course and an asphalt coated, shell wearing surface. It will be 1,800-ft long and 52-ft wide. A 7-in., reinforced-concrete pavement is also provided for. All materials will be furnished by the contractor.

Bidders include:

1C	Gulf bithulithic Co., Houston, Texas	$81,361
2	Brown & Root, Inc., Houston, Texas	82,171
5	Gaylord Construction Co., Houston, Texas	94,702

Bids: 7-29-53 Item	Unit	Quantity	Unit Prices 1C	2
Clearing & grubbing	ls	1	$1,500	$1,000
Excavation	cy	6,000	0.90	0.55
Remove curb & gutter	lf	100	0.35	0.80
Remove misc conc & msry	cy	100	6.00	10.00
Remove conc base & surface	sy	200	1.25	1.00
Remove sdwlks & driveway	sy	148	0.60	1.00
7" concrete pavement	sy	11,100	3.80	4.00
Monolithic curb	lf	3,275	0.90	1.00
Concrete sidewalk	sf	100	0.45	0.40
Std pvng header	lf	200	1.20	1.00
Board expansion joint	lf	1,484	1.10	0.90
Reinforcing steel	lb	73,000	0.12	0.11
Asph coated shell wearing surface	t	25	6.50	9.00
Cmt stab shell base crse	t	100	4.25	4.65
15" CP inlet lead	lf	100	4.00	5.00
18" CP inlet lead	lf	270	5.00	5.00
36" MRC sewer (all cuts)	lf	620	20.50	19.85
Type B inlet	ea	13	100.00	115.00
Extra depth B inlet	ft	5	20.00	25.00
Type A manhole	ea	1	170.00	170.00
Type C manhole	ea	1	190.00	150.00
Extra work manhours	ea	500	1.25	1.25
1½ ton truck hours	ea	500	0.50	3.50

River piers, Kansas

Three river piers to support two, 420-ft, tied-arch spans on the Missouri River Bridge will be constructed by the Kansas City Bridge Co., for the city of Leavenworth, Kansas. Kansas City was the lowest of three bidders entering a $530,840 bid that is 3% below the high bid and 6% below the engineer's estimate. All three bids were lower than the engineer's calculation, the high bid falling 2% below.

The bases of the pier footings will be 40-ft to 50-ft below the prevalent river stage and the contractor may, at his option, construct bases in open cofferdams or use pneumatic caissons.

In this area bricklayers are receiving $3.63 per hr; plasterers, $3.25 per hr; carpenters, $2.68 per hr; and common laborers, $1.98 per hr.

The project was started August 15 and will be finished by May 1, 1954.

Bidders include:

1C	Kansas City Bridge Co., Kansas City, Mo.	$530,840
2	Massman Construction Co., Kansas City, Mo.	549,735
3	Guy H. James, Oklahoma City, Oklahoma	549,941
EE	Howard, Needles, Tammen & Bergendoff, Kansas City, Missouri	564,000

Bids: 7-28-53 Item	Unit	Quantity	Unit Prices 1C	2
Bases of piers	cy	1,800	$190.00	$200.00
Conc above pier bases	cy	2,900	65.70	68.00
Reinf stl in conc above pier bases	lb	110,000	0.20	0.18
Exc for piers below elev of bottom of piers	cy	300	40.00	37.50
Miscell metal	lb	3,300	0.70	0.45

Bridge & approaches, Virginia

A $98,407 contract for construction of a bridge and approaches over the Chickahominy River, Virginia, has been awarded by the Virginia Highway Dept., P. W. Snead, district engineer.

C. H. Lawson, Inc., Williamsburg, Va., walked off with the job after underbidding the second low bidder by 18% and the high bidder by 26%. An average of 7% separated each of the five bids.

The entire project will be 0.303-miles long and will include a reinforced concrete bridge and approaches, utilizing a 16-ft wide, 6-in. deep, stabilized base subtreated with bituminous material.

The bridge will be built from six, 40-ft, reinforced-concrete beam spans totaling 254 ft-2 in. with a 22-ft wide roadway.

Bidders include:

1C	C H. Lawson, Inc., Williamsburg, Va	$98,407
2	L S. Abernathy & Co., Glenn Allen, Va	119,295
5	F. J. Gannaway & Co., Norfolk, Va	132,655

Bids: 7-17-53 Item	Unit	Quantity	Unit Prices 1C	2
Approaches				
Clearing & grubbing	ls	1	$700.00	$700.00
Regular excavation	cy	12,613	1.50	1.50
Borrow excavation	cy	10,467	0.95	0.95
Underdrain	lf	300	2.00	2.00
Subgrade underdrain	lf	100	1.50	1.50
Pipe, 12"	lf	20	3.00	3.00
48"	lf	170	18.00	18.00
F.A. project markers	ea	2	10.00	10.00
Stab base, 6" type I or II	sy	2,625	0.75	0.75
Stab base bl, stone, slag gravel	t	5	5.00	5.00
Bituminous material	gal	1,838	0.20	0.20
Cov material no. 11	t	80	7.00	8.00
Bridge superstructure				
Concrete, cl A	cy	278.6	70.00	80.00
Reinforcing steel	lb	64,980	0.15	0.15
Str stl (complete)	ls	1	3,000	3,500
Bridge substructure				
Concrete, class B	cy	426.5	54.00	70.00
Reinf steel	lb	500	0.15	0.20
Piles (untreated)	lf	5,180	2.00	2.00
Excavation, class A	cy	11	5.00	50.00
Excavation, class B	cy	470	20.00	30.00
Rem & dismantl exist struct & maintain traffic	ls	1	2,000	7,500

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- **Fire Resistant.** Both aluminum and sound-absorbent backing are incombustible.
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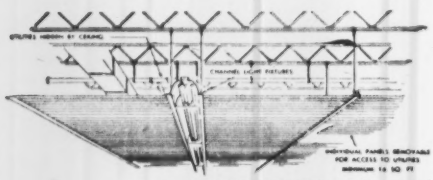
- **Low Weight.** Completed ceiling weighs less than one-half pound per square foot.
- **Modern Design.** Eye-pleasing corrugations in straight-line or pattern effects.
- **Adaptability** to any air-conditioning, including plenum chamber above panels.



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ALABAMA: Badham Insulation, Birmingham; Stokes Interiors, Mobile.

CALIFORNIA: Pacific Acoustics, Los Angeles; Sound Reduction, Oakland.

COLORADO: Danco, Inc., Denver.

CONNECTICUT: Wilson Construction Co., Hartford.

DISTRICT OF COLUMBIA: T. M. Woodall, Inc., Takoma Park.

FLORIDA: Standard Insulation, Fort Lauderdale; Cliff Haller, Orlando.

GEORGIA: Lewis & Co., Atlanta.

ILLINOIS: Anning-Johnson Co., Chicago.

INDIANA: Brown-Anning-Johnson, Inc., Indianapolis.

IOWA: Anning-Johnson Co., Des Moines.

KENTUCKY: Braun Acoustical Co., Louisville.

LOUISIANA: Walker Lloyd, Baton Rouge.

MAINE: Edw. F. Byrnes Co., Portland.

MARYLAND: Limbach Co., Hagerstown.

MASSACHUSETTS: Edw. F. Byrnes Co., Boston.

MICHIGAN: Nichols Co., Detroit; Harold R. Sobie Co., Grand Rapids.

MINNESOTA: Anning-Johnson Co., Minneapolis.

MISSISSIPPI: Stokes Interiors, Jackson.

MISSOURI: Hamilton Co., St. Louis; Stokes Co., Kansas City.

NEW JERSEY: Woolsulate, East Orange; W. M. Moyer Co., Quakerstown.

NEW MEXICO: Welch-Erwin, Albuquerque.

NEW YORK: Albany Acoustical Corp., Albany; A. P. Madden Co., Syracuse; Davis-Fetch, Buffalo, Rochester, Jamestown; Wm. J. Scully Corp., New York.

N. & S. CAROLINA: Bonitz Insulation, Greensboro, Columbia.

OHIO: Gellin Co., Cleveland; J. H. Archibald Co., Cincinnati.

OKLAHOMA: Ball Dist. & Eng. Co., Tulsa, Oklahoma City.

OREGON: Steward Griffith Co., Portland.

PENNSYLVANIA: Limbach Co., Pittsburgh; W. M. Moyer Co., Philadelphia.

TENNESSEE: Alexander Co., Memphis; John Beretta Co., Knoxville; Workman Co., Nashville.

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NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

September 29 Massachusetts October 5 Connecticut

STREETS AND ROADS

September 29 Massachusetts October 5 Connecticut

▲† **Mass., Chicopee Falls**—CANTILEVER HANGAR—B.A. On or About 10/20—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, 370 ft. concrete double cantilever maintenance hangar, 250 ft. wide, 65 ft. high, shops, Westover Air Force Base, ENG-19-016-54-32, $3,000,000. Plans deposit $25. CD 3/12/52, under LB.

BIDS ASKED—BUILDINGS

▲ **Mass., Saugus**—SCHOOL—B.A. 10/28—Town, W. E. Lawrence, mgr., Town Hall, brick high school, easterly side of Broadway, $1,750,000, S. W. Haynes & Assoc., 336 Main St., Fitchburg, archts. CD 5/6/52.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

STREETS AND ROADS

September 29 Maryland October 16 New Jersey

BIDS ASKED—BUILDINGS

▲ **Del., Wilmington** — HOSPITAL — B.A. 9/30 — The Memorial Hospital, 1501 Van Buren St., hospital addn., alterations, $3,500,000. Extended date. York & Sawyer, 101 Park Ave., New York, N. Y., archts. CD 9/3.

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Hollidaysburg**—TERMINAL—Pennsylvania R. R., J. L. Gressitt, ch. engr., Broad St., Station Bldg., 1617 Pennsylvania Blvd., Phila., Zone 4, soon lets contract 1 story 225x2,100 ft. steel, corr. asbestos railroad terminal and freight car repair shops, $12,000,000. CD 4/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **T & T Contg. Co.**, 4814 Glenwood Rd., Brooklyn, N. Y. CA $2,143,195, Bellerose-Floral Park lateral sanitary sewerage sys., approx. 28 mi. lateral sewers with connections at curbs for house service, MINEOLA, N. Y. Nassau Co., Charles Strohson, clk., Old Court House, Mineola, N. Y. Bids Aug. 25. CD 8/6.

▲ **Joseph Miele Constr. Co., C. Salvatore & Sons, George M. Brewster & Son, Inc., Terminal Constr. Corp., La Ferra Constr. Co., Inc.**, 275 Fort Lee Rd., Bogota, N. J., CA, $29,806,552, East and West Side Intercepting Sewers and Treatment Plants, JERSEY CITY, N. J. Jersey City Sewerage Auth., City Hall, Jersey City, N. J. Bids July 15. CD 6/5.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Dinardo, Inc., 331 Bouquet St., Pittsburgh 13, Pa. CA $2,502,618. const. separated hy w rein.-con. pavement 24 ft., divided hy. with 24 ft. wide on each side of divisor area 4 ft. and variable in width, rein.-con. pavement variable in width, widening existing road plain c. conc. base and surf. new base course and existing pavement with bit. surf. 13,919 ft. T. R. 88, Allegheny Co. Bids Aug. 28, awarded Sept. 14. CD 9/2, under LB.

▲ **A. T. Wikstrom, Inc.**, Skaneateles, N. Y. CA, $1,878,426, underpass and trunk sewer on East Capitol St. under 19 tracks Pennsylvania and B. & O. R.R., Wash., D. C. District Govt. Dir. of Hys., Pa. Ave. N.W., Wash., D. C. Bids Aug. 26, awarded Sept. 15. CD 8/31, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Lefrak Organization**, 97-26 64 Rd., Forest Hills, N. Y. Owner Builds. $5,000,000. ten 6 story APARTMENTS, for 660-families, on both sides of Batchelder St. from Avenue Y to Z, to be called American Park Apartments, BROOKLYN, N. Y. Julius Fishkind, 161-19 Jamaica Ave., Jamaica, N. Y., archt.

▲ **Shore Terrace Co-operative, Inc.**, c/o Morris Rothstein & Son, archts., 186 Joralemon St., Brooklyn 2, N. Y. Owner Builds. $2,000,000. four 6 story APARTMENTS for 240 families on Shore Parkway between Nostrand Ave. and E. 28 St., BROOKLYN, N. Y.

▲ **Fort Pitt Bridge Works**, Wood St., Pittsburgh, Pa., CA. Total est. $9,000,000. Superstructure for 1 story steel frame, COLD STRIP MILL, BRACKENRIDGE, PA. Alleghany Ludlum Steel Corp., Oliver Bldg., Pittsburgh, Pa. CD 11/3.

▲ **Wark & Co.**, 1920 Sansom St., Phila., Pa., LB $2,079,000. new Junior HIGH SCHOOL and SENIOR HIGH SCHOOL addn., LANSDALE, PA. North Penn Joint School Bd., Lansdale, Pa. Bids Aug. 26. CD 8/13.

▲ **Delaware Valley Development Co.**, 17 S. Olive St., Media, Pa. Separate Contracts. $4,500,000. RESIDENTIAL DEVELOPMENT (duplexes), Winona Ave., NORWOOD, PA.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

October 9 Tennessee October 23 Alabama

STREETS AND ROADS

October 9 Tennessee October 23 Alabama

SOON LETS CONTRACT—BUILDINGS

▲ **S. C., North Charleston**—Plant—Bird & Son Inc., P. O. Box 141, Charleston, soon lets contract. $2,250,000. Dotterer Eng. Co., P.O. Box 495, Charleston, engr. CD 9/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WEST VIRGINIA**—West Virginia Turnpike Comm., 1340 Wilson St., Charleston, Zone 5,

Nello L. Terr Co., Durham, N. C., LB, $6,947,128, rigid concrete;

Dickeson Inc., Monroe, S. C., LB, $4,897,456, flexible asph. surf. paving and drainage for approx. 30 mi. incl. curbs, gutters, toll plaza and misc. items to complete the proj. between Ghent, Mile 20 and Mossy, Mile 50 Contract No. 30, Raleigh and Fayette Counties. Bids Sept. 15. CD 8/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Paducah Independent School Dist.**, Paducah, Ky. rejected bids Aug. 10. high school, PADUCAH, KY. LB $3,390,000. CD 8/31, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

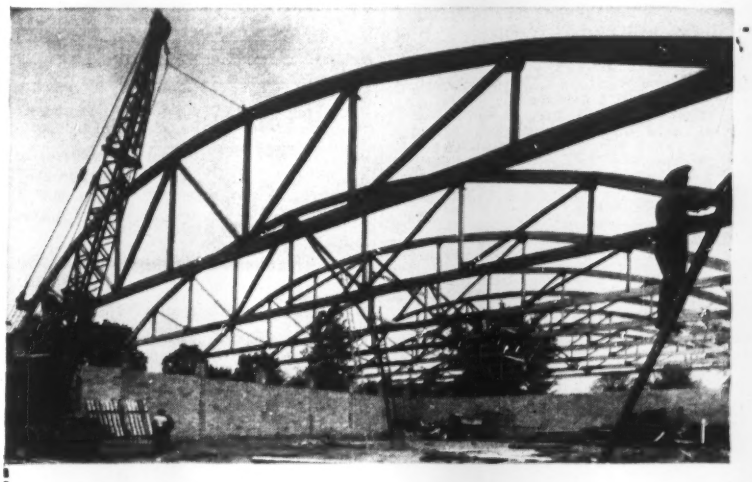
STATE HIGHWAY LETTINGS

STREETS AND ROADS

September 30 Michigan

BIDS ASKED—BUILDINGS

▲ **Wis., Wauwatosa**—HOSPITAL—B.A. 11/12—Milwaukee County Institutions & Depts., 8731 Watertown Plank Rd., 9 story, bsmnt., 5,900,000 cu. ft. county hospital addn., alterations. $11,250,000. Plans deposit



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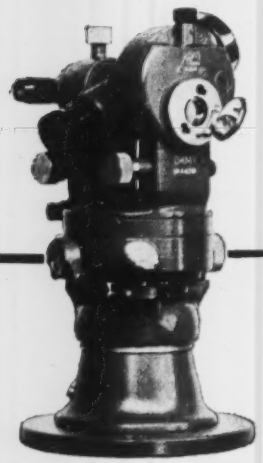

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$100. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., and Brust & Brust, 135 W. Wells St., Milwaukee, Zone 3, archts. CD 1/5/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., Columbus, Hatcher Bros., Inc., 116 Schoolway, Mingo Junction, O. CA $1,903,848, est. $2,211,500, c. conc.-b. conc. 0.585 mi. S.R. Sect. (18.05-18.37); U.S.R. 22, Sect. 17.05, AU-431 (7), City of Steubenville, Jefferson Co.;

C. F. Replogle, P. O. Box 308, Circleville, O., CA $1,564,075, c. conc. and constr. continuous steel beam bridge with concrete deck and substructure, Bridge No. WA-326.01A over State Rte. 7 and U. S. Rte. 50A, cont. sidewalk and railing extens. on existing west abutment of Bridge No. WA-3260 over Muskingum River 2.504 mi. S.R. 7, Sect. 21.91; U. S. R. 50A, Sect. 22.03; SR 326, Sect. 0.00B, GU-1059 (3), City of Marietta and Marietta Twp., Washington Co. CD 8/31, under LB.

▲ Cities Service Pipe Line Co., Masonic Bldg., Bartlesville, Okla., CA $15,000,000. 215 mi. petroleum products line with terminals and pumping stations from East Chicago, Ind., Des Plaines and Rockfort, Ill. and Madison, Wis. INDIANA, ILLINOIS and WISCONSIN Badger Pine Line Co. (Cities Service Oil Co., Bartlesville, Okla.; Sinclair Pipe Line Co., Sinclair Bldg., Independence, Kan., Pure Oil Co., 30 E. Wacker Dr., Chicago, Ill. and the Texas Co., New York, N. Y.)

BUILDINGS

LOW BIDS AND CONTRACTS

▲† Sam W. Emerson Co., 1836 Euclid Ave., Cleveland, O. CA Total est. $3,680,000, grading, excavations, foundations for five FACTORIES at ingot plant, to expand facilities to serve U. S. Air Force heavy press plant under constr. on adjacent site, CLEVELAND, O. Aluminum Co. of America, 2100 Harvard Ave., Cleveland, O. Robert Hampel, c/o owner, ch. wks. engr. CD 12/4.

▲ Centex Constr. Corp., McAree and Sunset Rds., Waukegan, Ill., CA, $13,000,000, 1,350 HOMES, west of WAUKEGAN, ILL. N. K. Winston & Co., 22 W. 48 St., New York, N. Y. Awarded Aug. 24. (Correction-owner). CD 9/11, under CA.

▲ B. W. Construction Co., 39 S. LaSalle St., Chicago 3, Ill. CA, $2,200,000, story, bsmnt., 100x240 ft., concrete, brick, stone NURSES HOME and 2 story, bsmnt., brick, stone, concrete SCHOOL, CHICAGO, ILL. St. Mary of Nazareth Hospital, 1120 Leavitt St., Chicago, Ill. Consoer, Townsend & Assocs., 351 E. Ohio, Chicago, Zone 11, engrs. Consoer & Morgan, 351 E. Ohio St., Chicago, Zone 11, archts. CD 10/10/51.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

October 1 Kansas
October 6 Oklahoma

STREETS AND ROADS

October 1 Kansas, Missouri

▲ Montana, Idaho and Washington—PIPE LINE—Bids Asked—Continental Pipe Line Co. & Associated Companies, Billings, Mont., 540 mi. 10 in. welded joint products pipe line from Billings, Mont. straight to Spokane, Wash. $20,000,000. CD 9/9, under LB.

BIDS ASKED—BUILDINGS

▲ Tex., San Antonio—PARKING GARAGES—B.A. 10/8—City, Ralph Winton, mgr., City Hall. Military Plaza, financing, planning and constructing underground public auto packing garages, Travis Park location, $2,225,000; Alamo Plaza location, $1,500,000; Main Plaza, $1,750,000; area of LaVillita, $1,750,000.

▲ Tex., Austin—HOSPITAL—B.A. 10/13—City, Walter Seaholm, mgr., City Hall, 1, 3 and 6 story, 65,000 sq. ft. Brackenridge Hospital addn., approx. 13,000

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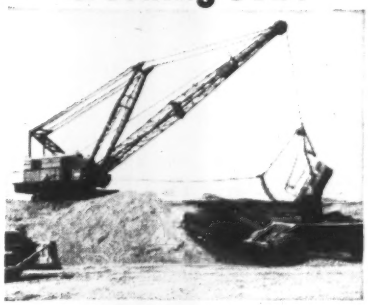

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HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Farnsworth & Chambers Co.**, Inc., 3018 Leeland St., Houston, Tex., LB $12,686,995, hangar base maintenance shops, concrete aprons and utilities, Serial No. IFB-41-608-54-5B, KELLY AIR FORCE BASE, TEX. U. S. Govt., c/o Dir. Procurement, Bldg. No. 43, Kelly Air Force Base, San Antonio, Tex. Bids Sept. 14. CD 8/31.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Park Estates Investment Co.**, 36 and Springlake Dr., Oklahoma City, Okla. Owner Builds. $1,800,000. 141 DWELLINGS, OKLAHOMA CITY, OKLA. CD 12/15.

▲ **I. A. Jacobson**, 3200 E. 31 St., Tulsa, Okla. Owner Builds. $2,500,000. HOUSING addn., Ranch Acres extended, TULSA, OKLA.

▲ **Manhattan Constr. Co.**, Manhattan Bldg., Muskogee, Okla., LB $3,066,100, est. $3,250,000. 12 story County COURT HOUSE, TULSA, OKLA., Tulsa Co., Court House, Tulsa, Okla. Bids Sept. 19. CD 9/9.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **American Bridge Co. Div. U. S. Steel Corp.**, 208 S. LaSalle St., Chicago, Ill., CA $2,186,913, superstructure;

Cascade Contractors & Austin Constr. Co., Terminal Sales Bldg., Portland, Ore., CA $676,307, substructure, Columbia River bridge, MCNARY, ORE. Umatilla Co., Court House, Pendleton, Ore. Bids Aug. 25. CD 9/1, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Carson Park Mutual Homes No. 7**, P.O. Box 8086, Long Beach, Calif., Owner Builds, $1,893,800, 226 stucco DWELLINGS, Brittain, Covant Sts., Hacket, Iroquois and Palos Verdes Aves., CARSON PARK, CALIF. Paul O. Duncan, 13310 Moorpark St., Sherman Oaks, Calif., archt.

▲ **Lakewood Rancho Est. No. 1 Corp.**, 3022 Studebaker Rd., Lakewood, Calif., Owner Builds, $3,330,000. 320 frame DWELLINGS, Kallian, Karen, Lees and Roxanna Aves., Kildee, Lanai, Mezzang Sts. and Studebaker Rd., LAKEWOOD, CALIF.

HEAVY CONSTRUCTION

CANADA

LOW BIDS AND CONTRACTS

▲ **ONTARIO**—Dpt. Highways, Parliament Bldgs., Toronto;

H. J. McFarland Constr. Co., Ltd., Box 559, Picton, Ont., CA, $1,469,000, grading, and culverts, 3 miles dual by-pass highway, near Kingston.

Rayner Construction Ltd., 29 Commercial Rd., Leaside, Toronto, Ont., CA, $1,884,000. grading and culverts Highway 27 Bloor St. to Queen Elizabeth Way, Toronto by-pass;

Dibblee Construction Co. Ltd., 384 Bank St., Ottawa, Ont., CA, $703,405, grading, culverts 7.7 mi. Highway 17 from Alfred to L'Original part of Trans-Canada Highway. Awarded Sept. 10. Grand total $4,056,405. CD 4/27/44.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fraser-Brace Engineering Co. (Ontario) Ltd.**, 80 Richmond St. W., Toronto, Ont., CA $16,000,000, design and construct pyrrhotite treatment PLANT to produce by-product iron, COPPER CLIFFS, ONT. International Nickel Co. of Canada Ltd., Copper Cliffs, Ont.

▲ **Carter Construction Co. Ltd.**, 419 Cherry St., Toronto, Ont., CA $2,500,000, 3 story, bsmt., 210x400 ft., Highways LABORATORY, 19 ft. high, 170x250 ft. STORES bldg., Downsview Ave. and Keele St., TORONTO, ONT. Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. Bids July 31, awarded Sept. 15. CD 7/14.

▲ **A. Nagine**, 591 Beaconsfield Blvd., Beaurepaire, Que. Owner Builds, $3,225,000. 150 two story, 45x55 ft., concrete, brick, stone, DWELLINGS, at Brentwood Heights, BEAUREPAIRE, QUE.

ALASKA

BIDS ASKED—BUILDINGS

▲† **Alaska, Fairbanks**—SCHOOL—B.A. 10/28—Alaska P. Wks., Dpt. Interior, 123 3rd St., Juneau, 2 story, 75,000 sq. ft., rein.-con. high school, $2,385,600. Plans deposit $50. CD 2/26.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Schmid & Lewis**, 2604 W. Lynn St., Seattle, Wash. LB $1,350,767, 220,000 sq. ft. rein. con. and masonry general depot WAREHOUSE with outside utilities, ENG-95-507-54-12, FORT RICHARDSON, ALASKA. U. S. Eng., 3013 Arcade Bldg., Seattle 1, Wash. Bids Sept. 10. CD 8/6.

(Proposal Advertisements see pp. 76 to 78)

Tuffy®

Stops Dozer Rope Waste

A Reel of Tuffy Dozer Rope Can Save Up to 300%

When 10′ or so of Tuffy Dozer Rope is crushed or cut on the drum, don't throw the whole rope away. Just feed through enough to replace the damaged part! When you're using Tuffy, there is plenty of service left in the undamaged part. You get 6 to 9 cuts from one reel and, figuring roughly, there are *two* dozer ropes to *each* reel of Tuffy. That gives you an approximate ratio of 6 to 2 . . . around 300% increased service! And you can have your dozer back on the job in less than *half* the time usually needed! Tuffy ½" Dozer Rope is now furnished in 150′ reels. Write today for simple details on how to mount Tuffy on *your* Dozer!

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*Firm Name*_____
*By*_____ *Title*_____
*Address*_____
*City*_____ *Zone*____ *State*_____

C-14

More construction business through sell-lease plans

Property users who don't want their assets tied up arrange to have buildings owned by long-term investors

The New York real estate firm of Webb & Knapp, Inc., last week completed a deal with Safeway Stores, Inc., of Oakland, Calif., that will mean about $30 million of new construction. The arrangement suggests a method that other construction firms could use to get new business.

Webb & Knapp will build 100 supermarkets, then lease them to Safeway. It expects to finish all the stores within the next 18 months. Neither company has mentioned any cost figures, but trade estimates are that the stores will average about $300,000 apiece.

This is a variation of a financing method that has been very popular since World War II—the so-called "sell-lease" plan. A great many companies, particularly chain stores, have used this method of getting cash for working capital without actually borrowing money. Here's what happens:

A company that prefers to have its assets in the form of working capital, rather than tied up in bricks and mortar, will sell its stores, factories, or office buildings to an investor or group of investors, who then lease the property to the original owner for a long term and with the privilege of renewal. Ordinarily, the tenant takes care of maintenance, pays taxes, insurance, and other operating expenses. Total rentals over the period of the lease are set high enough to repay the investor and give him interest on his money.

• **New construction**—Sometimes, in the case of new construction, the user never owns the property at all. He has it built to his specifications and title is taken by a permanent investor. Here is a sales opportunity for any construction firm which is willing to build up financial contacts. It can erect the structure which the prospective tenant wants, and find a permanent investor to buy it. This is what Webb & Knapp is planning to do in the case of Safeway, with the exception that it expects to become a long-term investor itself by continuing to own some of the stores.

Investors, particularly life insurance companies, pension funds, and educational institutions, have been interested in buying properties, because the income they get on such investments has been better than they could get on many types of securities.

• **Advantages**—For the using company there are several advantages in this form of financing. In the first place, instead of tying up some of its assets in buildings, the company has them in the form of cash. Presumably it can earn more by using this money in its business than it pays in interest as part of the rental of buildings. Furthermore, it has bypassed any restrictions against borrowing that may have been imposed on it through bond indentures or loan agreements.

There is another advantage that is very important in these days of high corporate tax rates. The rentals which the tenant pays are tax deductible as operating expense. Of course, if the user actually owned the property he would be entitled to take depreciation on it as a tax deduction. But in many cases the annual rental is considerably higher than allowable annual depreciation.

Safeway Stores is often credited with originating the sell-lease plan. Safeway started using it in 1939, and since 1940 has leased practically all of its stores.

CONSTRUCTION TRENDS

The stock market's troubles won't have much effect on construction. Bond market is more important.

Many construction men who have been reading about the break in stock prices may wonder how this will affect the construction industry. The answer: of itself, not very much.

The sharp decline in stock prices reflects the doubts that many individual investors and traders have about future business activity. Of course, if their doubts are justified and business does fall off later on, that is going to affect construction. But, just by themselves, lower stock prices won't have much effect.

Here's why: Most industrial companies don't sell new common stock to finance construction. Retained earnings, depreciation allowances, and bonds are the main sources of funds. Most big companies have capital budgeting plans set for many months ahead, plans which don't depend on the state of the stock market. Utilities, of course, do finance a substantial part of their expansion by selling common stock, but they are in a position to borrow money until stock market conditions improve.

The slide in stock prices represents Wall Street's uncertainty about the future. Its mood could change, and send stock prices up again. In fact, the market already has rebounded from the lows it reached early last week.

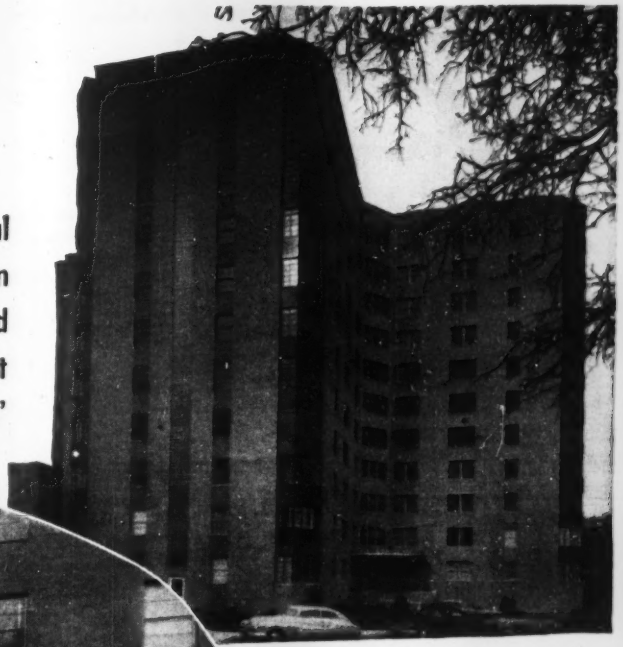
There could be some adverse affect on construction activity as a result of the market skid. Investors who might have been planning to use stocks as security for construction loans, or who had been thinking of selling stocks to finance new construction, will find their financial capacity reduced.

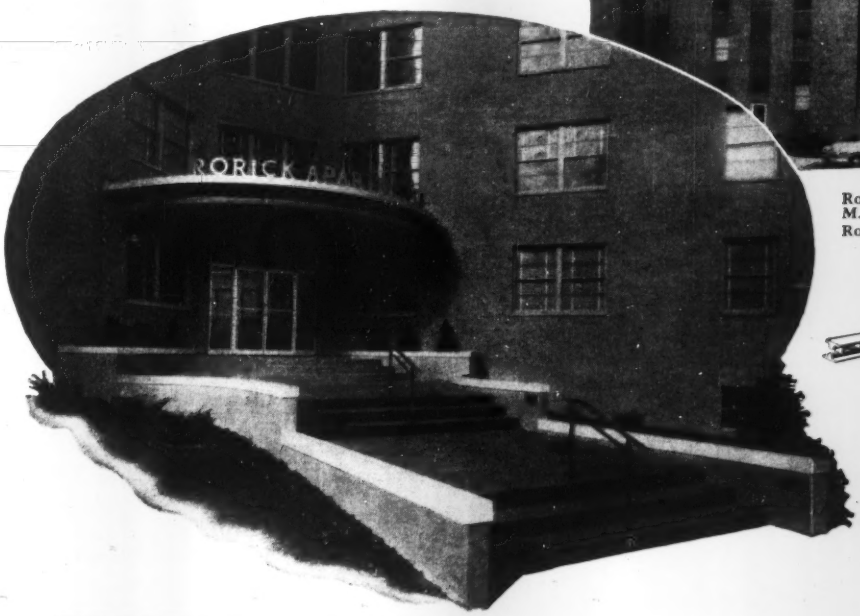
Far more important for construction men is the state of the bond market, which is scheduled to bid on a tremendous volume of corporate and municipal bonds in the near future. Corporate issues for which marketing dates have been set total $436 million. Another $50 million is planned for sale later in the season. In the field of tax exempts, scheduled borrowings are more than $300 million. And issues totaling $650 million will be launched when marketing preparations have been completed.

These forthcoming issues are the big story for construction men. And it's a cheerful story (page 21). Weakness in the stock market—as long as it doesn't assume catastrophic proportions—is much less significant.

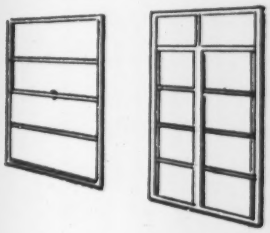
Architect M. J. Lahr says:

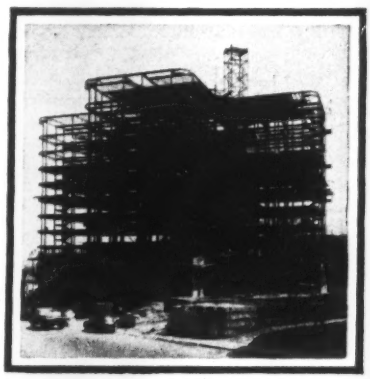
"To facilitate speedy, economical design and erection, we specified Truscon "O-T" Steel Joists, Steel Casements and Double-Hung Windows for the Rorick Apartment Building, at Omaha, Nebraska"





Rorick Apartments, Omaha, Neb.
M. J. Lahr, *Architect*
Rorick Construction Co., *Contractors*





● Big news in Omaha is the imposing new eleven-story Rorick Apartments. It illustrates the architectural distinction and the operating efficiency possible with Truscon Steel Building Products, and with one sure source for such diverse commodities as "O-T" Steel Joists and Double-Hung Steel Windows and Casements.

Truscon "O-T" Open Truss Steel Joists speed construction. Complete shop fabrication, absence of form work and minimum of field work, all make steel joists the most rapidly-erected fire-resistant construction. They are self-sustaining. Any number of floors can be erected at one time, with joists used as working platforms to speed other building operations.

Truscon Steel Windows of all types go in fast. They're delivered completely factory-assembled. Truscon Series 138 Double-Hung Steel Windows, completely weatherstripped in stainless steel, for the living rooms afford maximum comfort on the coldest days; Truscon Residence Casements in the sun rooms provide maximum ventilation in the summer weather.

You'll find complete details and specifications on all Truscon Steel Building Products in Sweet's; or, write us for illustrated literature.

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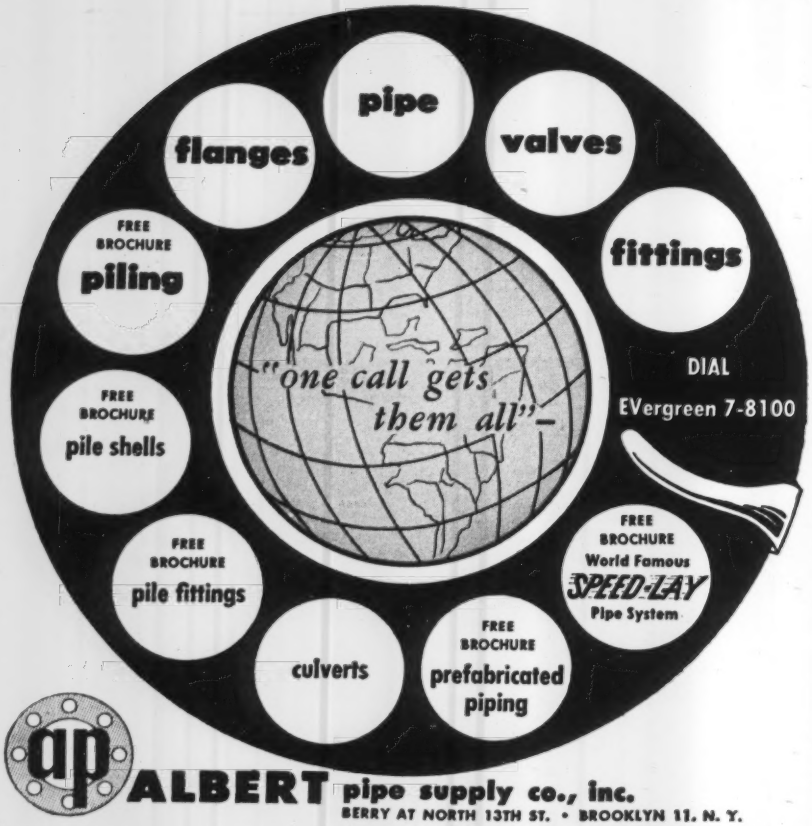
TRUSCON® **a name you can build on**



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The Pretest Underpinning system devised and developed by Spencer, White & Prentis, Inc., represents the highest development of modern underpinning skill. This patented system reduces settlement to the absolute minimum and is based upon sound established engineering principles.

For pit underpinning in simplest form or special and complicated underpinning jobs, Spencer, White & Prentis engineers will gladly assist you with their highly specialized skill.

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Ford plans construction to beat Chevrolet sales

In spite of talk of recession and predictions by some observers that the automobile industry may not sell as many cars in the next few years as it has in the recent past, the Ford Motor Co. is sticking to its postwar slogan: "Beat Chevrolet!" That means Ford, which has already spent more than $900 million since the war in building new plants and modernizing old ones, will continue to spend construction money at a high rate.

This was the word last week from Ray Sullivan, a Ford vice-president. He said that by early 1955 his company expects to boost its productive capacity for turning out Fords, so that it will equal or better Chevrolet's capacity. Ford is now No. 2 on the basis of individual models, while Chevrolet, a division of General Motors Corp., ranks No. 1.

Early this year Ford announced that it planned to spend $500 million on new plants and equipment in the period 1953 through 1957. Sullivan says that there has been no particular change in this program.

The company recently started building a stamping plant in the Cleveland area, and has announced that it also plans to build an engine plant there. Sullivan also said that Ford plans to make more of its own parts.

Business briefs . . .

• **Buda Co.** stockholders have approved the stock merger with Allis-Chalmers Mfg. Co. (ENR July 2, p. 71). They will get one share of A-C common for each 2¼ shares of Buda stock they hold.

• **International Nickel** is starting a $16-million plant at Copper Cliff, Ont., to process high-grade iron ore, in addition to nickel, from nickel ores in the Sudbury District of Ontario. The plant is the first unit in an operation which eventually will produce 1,000,000 tons of iron ore a year as a by-product of nickel production.

• **Fire losses hit record:** Lewis A. Vincent, manager of the National Board of Fire Underwriters, says that fire losses in August were $108 million, highest on record for that month, due to the fire at General Motors' Livonia, Mich. plant. For the first eight months of this year, losses total $617 million, up 18% over the first eight months of last year. NBFU says that this is the third year in succession that dollar losses have made a new high. This year, it's possible that fire losses may reach $1 billion.

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Foundation engineering is not an exact science to be solved by formula or handbook. No two sites or problems are identical. Some are simple, others so tough that only top-level experience and resourcefulness succeed in solving them.

WESTERN has licked many tough jobs since 1924, many of which required the creation of new techniques. Call WESTERN for the know-how and the ability to do the job right!

COMPLETE FOUNDATIONS FOR

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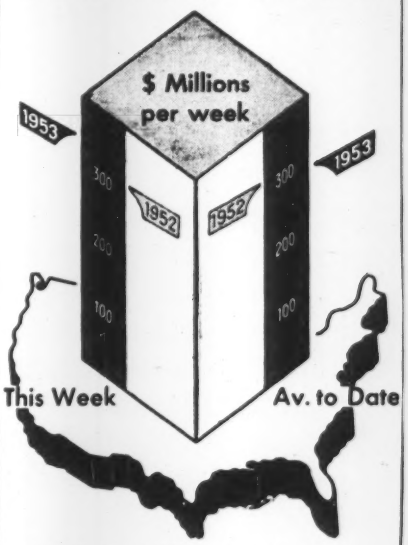
Activity This Week

As reported to ENR, (in millions of dollars)



Amount of contracts let

	This Week*	Cumulative 39 wks 1953	1952	% chge
Federal	$16.0	$1,155.0	$3,975.4	−71
State and municipal	165.7	3,766.9[1]	3,150.2	+20
Total pub.	181.7	4,921.9[1]	7,125.6	−31
Total priv.	159.5	6,474.5	5,130.4	+26
U. S. total	**$341.2**	**$11,396.4[1]**	**$12,256.0**	**−7**
Contracts by type of work				
Waterworks	$5.1	$183.4	$169.3	+9
Sewerage	39.0	334.4	221.7	+51
Bridges	26.0	514.8[1]	290.3	+77
Highways	59.3	1,360.5	1,164.0	+17
Earthwork, waterways	1.4	299.7	378.2	−21
Buildings:				
Public, excl. hsg.	35.2	1,276.3	3,778.7	−66
Housg., pub.	5.5	321.8	507.6	−37
Housg., priv.	78.4	2,759.7	2,278.7	+21
Commercial	18.8	911.3	470.5	+94
Industrial	45.0	2,046.0	2,002.7	+2
Unclassified	27.1	1,388.5	994.3	+40
Total	**$341.2**	**$11,396.4[1]**	**$12,256.0**	**−7**

[1] Revised. Mackinac Bridge bonds not sold.
*Six-day week.
NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	Week of Sept. 17 1953	Cumulative 38 Wks 1953	1952-53 % chge
Corporate securities	$14.2	$3,382.7	+24
State & municipal:			
Excluding housing	38.5	3,044.2	+31
Housing	...	212.9	−2
Federal loans	2.8	89.4	−71
Federal aid	...	770.9	+40
Total non-federal	**$55.6**	**$7,500.2**	**+22**
Federal appropr.:			
In U. S.	.....	1,566.7	−78
Outside U. S.	...	28.9	−84
Total new capital	**$55.6**	**$9,095.8**	**−33**

ENR indexes	1953	Base Years = 100 1913	1926	1949
Construction cost	Sept	610.17	293.31	127.91
	Aug	611.87	294.13	128.27
Building cost	Sept	436.24	235.82	124.01
	Aug	437.05	236.26	124.24
Volume	Aug.	487	198*	141*
	Jul	447	182	129

*Revised

5000 C. P. PORTABLE KEROSENE BURNING

FLOODLIGHT PROJECTORS

For Night Lighting

Widely used by contractors, municipalities, industrial plants, railroads, armed forces, and park districts

• *Absolutely weatherproof.* Burns for 40 hours on 6 pints of kerosene—also burns #1 Diesel Oil. Gives a white light of 5000 c.p. and throws a beam about 150x75 ft. A fine light to have especially in emergencies when power is not available. Model F. L. 6 (left) is mounted on a 5 to 8 foot telescopic tripod with revolving base and weighs 60 lbs.—$90.00 F.O.B. Chicago. The model below is mounted on a short stand and weighs 38 lbs.—$72.50 F.O.B. Chicago.

Specifications

Projector dimensions — 14½" wide — 11½" deep — 26" high	
Dia. of Reflector	14"
Center of Refl. above ground—short stand	18"
Center of Refl. above ground—tripod stand	8' max. 5' min.
Weight of Projector without oil	22 lbs.
Weight of Projector with oil	28 lbs.
Weight of short stand	5 lbs.
Weight of tripod stand	34 lbs.
Capacity (sufficient for about 40 burning hours)	6 pts.

• **INSPECTION LAMP**
Model AL-21

Excellent for use in confined spaces as a hand inspection lamp or as a small floodlight. Overall dimensions 9x9x 11-½"—weight 7-½ lbs.—dia. of Refl. 7"—oil capacity 1-½ pints—will run 12 hours and gives a 2000 mean reflected light.
$36.00 F.O.B. Chicago.

WRITE FOR DETAILS

Let us send you descriptive circulars and arrange for a demonstration of our floodlight reflector and inspection lamp.

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"I could see the corpsman kneeling over me. The blood plasma was running down through a tube into my arm and he said everything was going to be O.K. I was walking across an enemy mine field in Seoul when one exploded and a piece of shrapnel caught me in the leg.

" 'Got enough of that stuff?' I asked him, pointing to the blood. 'I guess we never have enough,' he said, 'but you can thank *somebody* for this pint.'

"How do you thank 'somebody' for blood? For saving your life? When I got back home, I discovered the answer at my local blood donor center. There's only *one* way to say thanks—by giving some of your own blood."

"How do you thank 'somebody' for Blood?"

Yes, all kinds of people give blood—for all kinds of reasons. But whatever *your* reason for giving blood, this you can be sure of: Whether your blood goes to a combat area, a local hospital, or for Civil Defense needs—this priceless, painless gift will some day save an American life!

Business Executives!
✓Check These Questions!

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

- ☐ Have you given your employees time off to make blood donations?
- ☐ Do you have a Blood Donor Honor Roll in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?
- ☐ Have you arranged to have a Bloodmobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed employees of your company's plan of co-operation?
- ☐ Was this information given through Plant Bulletin or House Magazine?
- ☐ Has your company given any recognition to donors?
- ☐ Have you conducted a Donor Pledge Campaign in your company?

Remember, as long as a *single* pint of blood may mean the difference between life and death for *any* American . . . the need for blood is *urgent!*

Give Blood Now—Call Your Red Cross Today!

National Blood Program

OFFICIAL PROPOSALS

Bids: October 1, 1953

Barge Canal Improvement

Sealed proposals in duplicate covering construction of

Contract—Extending Upper Lock Gates, U.S.-88 Removing Old and Replacing New Lower Lock Gates, Lowering Sills, Lining Valve and Culvert Walls and Performing Other Miscellaneous Work at Barge Canal, Lock 7 (Near Niskayuna), Schenectady County, N. Y.

will be received by Henry A. Cohen, Director, Bureau of Contracts and Accounts, Department of Public Works, The Governor Alfred E. Smith State Office Building, Albany, N. Y., on behalf of the Department of Public Works until 10:30 o'clock A.M. (Eastern Standard Time) on Thursday, October 1, 1953, when they will be publicly opened and read.

Each proposal must be made upon the form and submitted in the envelope provided therefor and shall be accompanied by a certified check made payable to the State of New York, Commissioner of Taxation and Finance, of 5% of the amount of the bid as a guaranty that the bidder will enter into the contract if it be awarded to him. The title of the work must be written on the front of the envelope, sealed and delivered to Henry A. Cohen, Director, Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Building, Albany, N. Y. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alterations or additions may be rejected as informal. Successful bidder will be required to give a bond conditioned for the faithful performance of the contract and a separate bond for the payment of laborers and materialmen. Corporations submitting proposals shall be authorized to do business in the State of New York. Drawings and specifications may be examined free of charge at the following offices:

Henry TenHagen, Deputy Chief Engineer, The Governor Alfred E. Smith State Office Building, Albany, N. Y.
State Architect, 18th Floor, 270 Broadway, New York City.
G. L. Nickerson, Dist. Engineer, 353 Broadway, Albany, N. Y.

Drawings and specifications may be obtained from the Director, Bureau of Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. upon deposit of $10.00 for each set.

Refund in full will be made to bidders for one set of plans and specifications returned in good condition within 30 days of award of contract or the rejection of the bids. A 50% reimbursement will be made for the return in good condition, of all other sets of the plans and specifications within 30 days following the award of the contract or the rejection of the bids.

Checks for plans and specifications shall be made payable to the State of New York.

Proposal blanks and envelopes will be furnished without charge.

B. D. TALLAMY, Superintendent
N. Y. State Department of Public Works

Bids: November 2, 1953

East Side and Stevens Creek Intercepting Sewer Systems

The Sanitary District of Decatur, Macon County, Illinois, will receive sealed bids for:

East Side Intercepting Sewer System, Divisions A. B. C. and D, Project Ill. 11-P-1011, and

Stevens Creek Intercepting Sewer System, Divisions E. F. G. & H, Project Ill. 11-P-1012

until One-thirty o'clock P.M. (1:30 P.M.) Central Standard Time (C.S.T.) on the Second (2nd) Day of November, 1953, in the offices of the Sanitary District of Decatur, Room 1151 Citizens Building, in the City of Decatur, State of Illinois, at which time and place all bids will be publicly opened and read aloud.

The successful bidder, or bidders, will be required to furnish a satisfactory performance bond.

The Contract Documents, including plans and specifications, are on file and open to public inspection, in the office of the Sanitary District of Decatur, Macon County, Illinois, in the said Citizens Building.

Bid blanks will not be issued to any prospective bidder later than twenty-four hours (24) before the date of the letting.

Copies of each set of documents, including proposal forms, plans and specifications, may be obtained by depositing with the Clerk of the said Sanitary District of Decatur $50.00 for each,—the East Side Intercepting Sewer System and for the Stevens Creek Intercepting Sewer System. Copies of the documents may also be obtained from Warren & Van Praag, Inc., 253 South Park Street, Decatur, Illinois, Consulting Engineers for the said Sanitary District. The amount of the deposit for one set of documents for either of the projects will be refunded to each actual bidder who returns the plans and documents in good condition within ten (10) days after the opening of bids. Twenty-five Dollars ($25.00) will be refunded for each of all other sets of documents so returned for either of the said projects.

The Sanitary District of Decatur, Macon County, Illinois, reserves the right to reject any and all bids and waive any informalities in bidding.

A certified check or bank draft, payable to the Sanitary District of Decatur, Macon County, Illinois, or a satisfactory bid bond executed by the bidder and a surety company, in an amount not less than five per cent (5%) of the bid shall be submitted with each bid.

No bid shall be withdrawn after the opening of bids without the consent of the Sanitary District of Decatur, Macon County, Illinois, for a period of sixty (60) days after the scheduled time of closing bids.

It will be mandatory upon the contractor to whom the contract is awarded, and any subcontractor under him, to pay not less than the prevailing wage rates that may be in effect at the time of receiving bids, including the prevailing rates for legal holiday and overtime work, to all laborers, workmen and mechanics employed by him in the execution of the contract. The definition of overtime shall be as set out in agreement between Contractors and various unions.

Sept. 14, 1953

SANITARY DISTRICT OF DECATUR, ILLINOIS
J. D. Johnson, President
L. V. DeWitt, Clerk

Bids: October 15, 1953.

Towers and Cable Anchorage Steelwork, Contract No. 4

DELAWARE RIVER PORT AUTHORITY
Administration Building
Camden, New Jersey

Sealed bids will be received for the construction of Towers and Cable Anchorage Steelwork for a Suspension Bridge over the Delaware River connecting Packer Avenue in Philadelphia, Pennsylvania and Gloucester City, New Jersey, known as Contract No. 4, at the office of the Secretary of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 1:30 P. M. Eastern Standard Time October 15, 1953 at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $250,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania or Camden, New Jersey, and must not be enclosed with the sealed bid. The Surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Secretary.

Bids: October 20, 1953

Extension of 4 KV Distribution System

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-320.002

Sealed proposals for the furnishing and installation of duct banks and substation pads and the installation of cable and substation equipment for the extension of the 4 KV Distribution System at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1111, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. on Tuesday, October 20, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1111, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, September 24, 1953

Bids: October 6, 1953

Contract No. 37, 37A, 37B, 37C

Sealed proposals will be received by the West Virginia Turnpike Commission for:

The work to be done under Contract No. 37 consists generally in the construction of the reinforced concrete bridge deck on the steel superstructure of the three major bridges and includes the erection of pipe railing, placing anchor bolts for lighting standards, furnishing and installing lighting conduits and pull boxes on two of the bridges and incidental construction. The Bluestone River Bridge is located at about Mile 9, near Eads Mill in Mercer County, the Fourmile Fork Bridge is located at about Mile 68, near Standard and the Kanawha River Bridge is located at about Mile 85, near Reed both in Kanawha County and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

Contract No. 37 consists of the combined quantities of Contract Nos. 37A, 37B and 37C.

The Principal Items of Work Include:

	Approximate Quantities			
	37A	37B	37C	
Concrete	1,675	1,550	2,775	Cu. Yd
Reinforcing Steel	325,000	300,000	590,000	Pounds
Erecting Pipe Railing	2,700	2,480	4,340	Lin. Ft

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A. M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A. M. Eastern Standard Time, on October 6, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton, Chairman

U. S. Government

GOV. OF DIST. OF COL., DIR. OF SAN'Y ENGRG., D.C., Sept. 8, 1953. SEALED PROPOSALS will be recd. in Rm. 404, 499 Pa. Ave., N.W., Wash. 1, D.C., until 2 PM EST, Oct. 9, 1953, and then publicly opened and read for construction of Sewage Treatment Plant Additions-Chlorination Plant-Unit 20-Structures and Equipment, Blue Plains, D.C., including all concrete, reinfore, and struc. steel, water supply system, sewer and drains, chlorine piping, plumbing, heating and ventilating, sump pumps, river water pumps, architectural work, electrical and track work, roadways and walks, painting and clean-up and all misc. work. Proposal forms, plans and specifications obtainable, upon deposit of a Certified Check for $50.00, payable to Collector of Taxes, D.C., from Supervisor, Contr. Sec., Procurement Office, D.C., Room 406 - 499 Pa. Ave., N.W. (Tel Na 8-6000, Ext. 2378)

OFFICIAL PROPOSALS

Bids: October 13, 1953

Water Distribution System

Sealed bids will be received until 5:00 P.M. EST, October 13, A. D., 1953, in the office of the Town Clerk, Lauderdale-By-The-Sea, Florida for

EXTENSION OF WATER DISTRIBUTION SYSTEM

Plans, specifications and bidding blanks may be obtained from the office of the Town Clerk.

A deposit of $25.00 for plans and specifications and of $15.00 each for additional copies of plans or specifications will be required. All deposits for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A certified check or bank check for 2% of the total amount of the bid, made payable to Town of Lauderdale-By-The-Sea, Florida shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

Any bid accepted by the Town of Lauderdale-By-The-Sea, Florida shall be subject to the ability of said Town to validate and sell indentures, certificates, or bonds in an amount sufficient to cover the overall cost of the extension of the water system in said Town.

The Town of Lauderdale-By-The-Sea, Florida reserves the right to reject any or all bids or to waive any irregularities in bids.

Carole Garland—Town Clerk

NOTICE TO BIDDERS

Contract C-17
Contract C-18
Contract C-19
Contract C-17&18
Contract C-18&19
Contract C-17, 18&19

Sealed proposals will be received by the Ohio Turnpike Commission until 10:00 A.M. Eastern Standard Time, October 20, 1953, for the performance of each of the contracts enumerated above.

The work covered by Contract C-17 consists generally of the construction of grading, drainage, structures and paving of approximately 3.6 miles of Ohio Turnpike Project No. 1, beginning at a point about 700 feet west of the intersection of the Turnpike centerline and North Royalton-Brecksville Parkway at Turnpike Centerline Station 796+50 and extending eastwardly to a point about 45 feet northwest of the county line between Cuyahoga and Summit Counties to Turnpike Centerline Station 988+00, all in Cuyahoga County, and the construction of an engineer's office building and facilities on or near the site of the work.

The work covered by Contract C-18 consists generally of the construction of grading, drainage, structures and paving of approximately 4.6 miles of Ohio Turnpike Project No. 1, beginning at a point about 250 feet east of West 130th Street at Turnpike Centerline Station 553+00 and extending eastwardly to a point about 700 feet west of the intersection of the Turnpike centerline and the North Royalton-Brecksville Parkway to Turnpike Centerline Station 796+50, all in Cuyahoga County, and the construction of an engineer's office building and facilities on or near the site of the work.

The work covered by Contract C-19 consists generally of the construction of grading, drainage, structures and paving of approximately 3.9 miles of Ohio Turnpike Project No. 1, beginning at a point about 1,700 feet west of the Baltimore and Ohio Railroad tracks at Turnpike Centerline Station 354+64 and extending eastwardly to a point approximately 250 feet east of West 130th Street to Turnpike Centerline Station 553+00, all in Cuyahoga County, and the construction of an engineer's office building and facilities on or near the site of the work.

The work covered by Contracts C-17&18; C-18&19; and C-17, 18&19, which cover various combinations of Construction Sections 17, 18 and 19, is the construction as above generally described for the individual Construction Sections in each combination contract.

In Construction Section 17, the principal structures to be built are one box culvert, extensions to two existing box culverts, four single bridges, and one twin bridge (said twin bridge consisting of two separate but nearly identical and parallel structures). All of these bridges are steel beam bridges of from three to five spans each supported on reinforced concrete abutments and bents. The abutments and bents of two bridges are to be on cast-in-place reinforced concrete piles and the abutments and bents of three bridges are to be on spread footings.

In Construction Section 18, the principal structures to be built are two box culverts, three single bridges and three twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). The three single bridge structures are steel beam bridges of from four to five spans each. One twin bridge structure of three spans has steel girders and two twin bridge structures of from three to four spans each have one steel beam structure and one steel girder structure. All of these bridges are supported on reinforced concrete abutments and bents. The abutments of four bridges are to be on cast-in-place reinforced concrete piles and the abutments of one bridge are to be on spread footings. The bents of one bridge are to be on cast-in-place reinforced concrete piles, and the bents of four bridges are to be on spread footings.

In Construction Section 19, the principal structures to be built are three box culverts, extensions to one existing box culvert, eight single bridges, and three twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). Nine of these bridges are steel beam bridges of from three to five spans each, and two bridges are steel girder bridges of from three to four spans each. All of these bridges are supported on reinforced concrete abutments and bents. The bents of ten bridges are to be on spread footings, and the bents of one bridge are to be on cast-in-place reinforced concrete piles. The abutments for three bridges are to be on steel piles, the abutments for six bridges are to be on cast-in-place reinforced concrete piles, and the abutments of two bridges are to be on spread footings.

Approximate quantities of the major items of construction for Contract C-17 are as follows:

Roadway Excavation	780,000 cubic yards
Structural Concrete	6,600 cubic yards
Reinforcing Steel	1,080,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	1,957,000 pounds
10" Reinforced Concrete Pavement	101,000 square yards

Approximate quantities of the major items of construction for Contract C-18 are as follows:

Roadway Excavation	2,875,000 cubic yards
Borrow	52,000 cubic yards
Structural Concrete	9,600 cubic yards
Reinforcing Steel	1,614,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	3,181,000 pounds
10" Reinforced Concrete Pavement	125,000 square yards

Approximate quantities of the major items of construction for Contract C-19 are as follows:

Roadwy Excavation	1,016,000 cubic yards
Structural Concrete	10,620 cubic yards
Reinforcing Steel	1,742,000 pounds
Fabricated Structural Steel (excluding furnishing and fabrication)	3,823,000 pounds
10" Reinforced Concrete Pavement	128,000 square yards

For each Contract, fabricated structural steel and structural expansion and/or contraction joints will be furnished by the Commission.

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1	$ 5.00
Plans (also soil profiles and boring logs), per set, per construction section	15.00
Cross Sections, per set, per construction section	25.00

Forms or copies of all remaining Contract Documents, including Proposals for each of the Contracts set forth above, the Affidavit which must accompany any such Proposal, this Notice to Bidders, the Special Provisions applying to said Contracts, the Contract to be entered into with the (or each) successful Bidder, and the Contract Bond to be furnished with such Contract, will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office.

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accompanied by a certified check or checks on a solvent bank or banks, payable to the order of the Ohio Turnpike Commission in an amount not less than $100,000 per Construction Section covered by the Contract on which the Bidder bids. If the Bidder shall tender bids for more than one Contract, said amount shall be not less than $100,000 per Construction Section covered by the Contracts on which he shall tender Proposals; provided, however, that if one or more Construction Sections are included in more than one Contract for which the Bidder shall tender Proposals, the Bidder need furnish only $100,000 per each such section, notwithstanding such duplication. The Commission may at any time cash any such check. Each such check or the proceeds thereof will be held by the Commission as a guaranty that, if any Proposal guaranteed thereby is accepted, a Contract will be entered into and the performance of the Proposal secured.

Each such check or the proceeds thereof will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications, provided that if there be a forfeiture, it shall be of an amount equal to $100,000 per Construction Section covered by the Proposal with respect to which the forfeiture occurs, and any excess will be returned to the Bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, October 20, 1953, in the offices of the Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where Proposals will be publicly opened and read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

OHIO TURNPIKE COMMISSION

U. S. Government

GOV. OF DIST. OF COL., DIR. OF HIGHWAYS, D.C., Sept. 9, 1953. SEALED PROPOSALS will be recd. in Rm. 404, 499 Pa. Ave., N.W., Wash. 1, D.C., until 2 PM, EST, Oct. 1, 1953, and then publicly opened and read for construction of a 74 ft. span across Oxon Run, S.E. The superstructure is made up of 9 prestressed concrete beams 36" wide x 39½" depth. (Fed. Aid Proj. S-66 (1). Approx. quan. of major items in structure: 25,000 cu. yds. excavation, 582 cu. yds. concrete, 66,000 lbs. reinforcing steel, 19,000 lbs. high tensile strength steel wire, 192 cu. yds. concrete in prestressed girders. Proposal forms, plans and specifications obtainable, upon deposit of a Certified Check for $25.00, payable to Collector of Taxes, D.C., from Supervisor, Contr. Sec., Procurement Office, D.C., Room 406 - 499 Pa. Ave., N.W. (Tel Na 8-6000, Ext. 2378)

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4046) will be received at Kennewick, Washington, until October 27, 1953, for furnishing labor and materials for earthwork, concrete canal lining, and structures, Main Canal, Station 0+61.1 (AH) to Station 114+70 and Station 246+75 to Station 249+00, Kennewick Division, Yakima Project, Location near Prosser, Benton County, Washington. Principal items are: 136,060 cu. yds. excavation for canals, structures and borrow; 200 cu. yds. concrete in structures; 3,716 cu. yds. concrete in canal lining; 748 lin. ft. furnishing and laying 12-, 15-, and 18-inch diameter concrete pipe; 17,000 lbs., furnishing and installing metal slide gates and safety ladders; and other work. Completion time 360 days. For particulars, address Bureau of Reclamation, Kennewick, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

(Continued on page 88)

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.50 a line an insertion.

INFORMATION:
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York City Office, 330 W. 42nd St., N. Y. 36 for October 8th issue closing September 28th

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED: MAN for engineering promotion in eastern paving field, college graduate preferably with state highway experience, who likes competitive effort. Good salary and opportunity for promotion. Write full details. P-9056, Engineering News-Record.

ENGINEER WITH training and experience in Sanitary field. Excellent opportunities in United States or Latin America with small but long established firm having Profit Sharing Plan. P-9030, Engineering News-Record.

EXPERIENCED ESTIMATOR and Chief Engineer between the ages of 35 and 45, to make quantity take-offs, help price, buy, expedite and do some field supervision. All our work is competitive. We specialize in industrial, commercial and public works. Only experienced and high-grade men need apply. Permanent job for right man. Excellent salary and bonus. Office located in Ohio. Send qualifications, experience and photograph if available. P-9112, Engineering News-Record.

ENGINEER FOR inspection, control and sales assistance in concrete products plant. State experience, salary expected. P-9173, Engineering News-Record.

ASSISTANT CITY Engineer $505-$615. Kansas City Missouri will examine applicants for the position of Assistant City Engineer on a nationwide basis. Will have responsible charge of the preparation of plans and specifications for Municipal trafficways, airports, bridges, sewers, buildings and similar projects; supervise construction work, make surveys and prepare engineering reports; perform related work. Starting salary at level commensurate with ability and experience. Write for application forms c/o Personnel Department, 12th Floor, City Hall, Kansas City 6, Mo.

WANTED—BUILDING Construction Estimator —By old established North Jersey Company— Must be experienced with emphasis on Industrial Construction. Must have engineering background and be able to handle the complete estimate. Excellent Salary—Profit Sharing—Opportunity to advance—Age 32-42. P-9232, Engineering News-Record.

(Continued on the following page)

CONSTRUCTION EXECUTIVE
Vice-President
$15,000 + substantial bonus

Well established company doing approximately $10,000,000 volume annually in industrial, institutional and public works competitive construction.

Due to expansion, our client requires the services of a top-flight construction executive under 50 years of age, with an engineering degree and a record of accomplishment in the competitive construction field. Experience must include administration and work in the field.

Our client's associates know of this advertisement. Replies will be kept in strict confidence. Our service charge will be taken care of by the employer.

Accredited Personnel Service
12 South 12th Street
Philadelphia 7, Pennsylvania

PROJECT MANAGER

Power Plants

Internationally known engineering organization, located on the East Coast, requires the services of a graduate ME with a minimum of 10 years' experience in the design and development of chemical, oil refinery or other large industrial power plants.

This is a permanent, top-level position and offers a high salary, an unusually liberal pension plan and vacation policy, and executive insurance. Traveling and moving expenses will be paid.

Please submit complete details of education, background, experience, past salaries, and initial salary requirements. Our personnel have been advised of this opening.

BOX 119, ROOM 1201
230 WEST 41ST., NEW YORK 36, N. Y.

SALES ENGINEERS

The Union Metal Manufacturing Company is expanding its sales force and invites applications from experienced engineers in street lighting, foundation pile material, contractor equipment sales, or industrial plant material handling sales.

Positions leading toward district office or product sales manager.

Prefer applicants, age 35 to 45, having engineering degree or practical experience in any of the above fields.

Applicants interested communicate with Mr. D. B. Hanna, Vice President in Charge of Sales.

The Union Metal Manufacturing Company
1432 Maple Ave., N.E., Canton 5, Ohio

WANTED
EXPERIENCED CHIEF ESTIMATOR
Must have ability and be capable of directing Estimating Dept. of Building Contractor's Office in New York City.

P-9050, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CITY ENGINEER

WANTED

Salary $6300-7200.

Retirement plan plus Social Security. Works under direction of Director of Public Works. Apply City Manager, Kenosha, Wisconsin before November 13.

ESTIMATORS

Fully experienced in industrial and commercial buildings and mechanical installations (machinery, equipment, piping, etc.)

These openings in Cleveland Office offer excellent working conditions with paid vacations, sick leave and participating group insurance program. Presently working scheduled 5 day 45 hour work week.

Replies will be treated confidential and arrangements will be made to interview selected applicants. Please submit complete resume stating experience, education, salary required and date available to

THE H. K. FERGUSON COMPANY
Engineers and Builders
Ferguson Building Cleveland 14, Ohio

BRIDGE - HIGHWAY ENGINEERS
DESIGNERS - DRAFTSMEN

For work on major bridges, expressways, and turnpikes. Permanent positions with periodic promotions depending on experience and ability. Paid vacations, sick leave, hospitalization and life insurance. Include experience, salary requirement in first letter. Photograph optional.

Howard, Needles, Tammen & Bergendoff
Consulting Engineers
1805 Grand Ave., Kansas City 8, Mo.

MECHANICAL ENGINEER

With general building contractor. Excellent opportunity and permanent position with young aggressive company operating throughout the south. Must be capable of estimating and analyzing subbids received from mechanical and electrical subcontractors and supervise and expedite work after subcontract award. Write full particulars, including education, experience, personal details, and salary requirements, to:

Blount Brothers Construction Company

Post Office Box 1144

MONTGOMERY, ALABAMA

PROJECT ENGINEER

For public works, waterfront, and related projects. Must have had successful and proven experience in promotional contacts and detail management of engineering. Please do not apply unless you have sold projects in the past.

P-9045, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

PROJECT ENGINEER

Must have large experience in design, estimates and administrative capacity on process plants involving mechanical, electrical, chemical and structural aspects. An opportunity for qualified man with expanding engineering firm, Southeast, with national operations. Write fully

P-9199, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT
(Continued from preceding page)

ENGINEER—HEAVY Construction—Extensive experience in Highway Bridges—Overpasses—Foundations—Excavation—Water Conditions—Concrete in all phases. Must be able to handle bidding—Cost analysis. Profit Sharing—Fine Opportunity if capable. P-9233, Engineering News-Record.

BUILDING CONSTRUCTION Sales Engineer—To contact Industrial Firms for design and construction services. Must have construction engineering or architectural experience. Should have some established contacts but will consider ambition, intelligence and interest of applicant. Minimum salary $10,000 plus Profit Sharing. P-9234, Engineering News-Record.

MECHANICAL ENGINEER, with pile driving and rigging experience. Reply P-9237, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEERS—Albany, New York and Pittsburgh, Pennsylvania with established national concern selling prefabricated metal products to engineering and construction markets. Position offered is permanent and presents excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Age 24 to 30. SW-8254, Engineering News-Record.

WANTED MANUFACTURER'S representatives in the bulk materials storage field wanted by company eminent for thirty-five years. Large unit sales. Write giving information on lines now represented and area of coverage. Give personal resumé and references. East of Mississippi only. Vice President—Sales, Box 356, Marietta, Ohio.

POSITIONS WANTED

STRUCTURAL ENGINEER, licensed graduate, 28 years office and field, industrial buildings, chemical plants, waterfronts, underground structures, etc., available for permanent responsible position. PW-9195, Engineering News-Record.

CONSTRUCTION EXECUTIVE, Grad. Eng. 20 years successful background field and administrative management in all fields of construction, present salary $12000. Desire change to position that offers possibilities and future security. PW-9188, Engineering News-Record.

CONSTRUCTION ESTIMATOR, Office Engineer, 18 years experience on fine residential, commercial, heavy industrial, and Institutional construction, familiar with sub-contracts, requisitioning materials, expediting purchasing and field supervision, capable supervisor of personnel, age 42, married, Architectural Engineering, now employed as estimator and office Engineer, desires permanent connection with contractor or Construction Company in similar capacity. PW-9186, Engineering News-Record.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-third year. Write today.*

WILSON *Engineering Corp.*

College House Offices—HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS WANTED

CONST. ENGR. Supt. Completing refinery construction contract Middle East. Desires contacts leading to foreign contract. 15 years heavy construction. Spanish, Arabic. PW-9155, Engineering News-Record.

PROJECT MANAGER—Resident Engineer 27 years diversified chemical & industrial experiences, including, design—estimates—schedules—reports and field project administration. Capable organizer with required capacity to assume complete responsibilities for coordinating all project activities. Available 30 days. PW-9135, Engineering News-Record.

CIVIL ENGINEER, B.S. in C.E., P.E. New York State, age 31, 7 yrs. experience design of steel & concrete buildings, plant sewers, roadways & RR tracks for industrial plants. Desire position affording opportunity for progressively increasing scope & responsibility with possible business participation. PW-9133, Engineering News-Record.

GEOLOGIST, SINGLE, 29, with PH.D. and varied experience, capable in soils, foundation, water, oil, and ores work. Desires permanent or temporary overseas position of any nature in Asia or Canada. May consider domestic jobs. PW-8994, Engineering News-Record.

GENERAL SUPT. 25 years diversified heavy construction experience. Capable of assuming full responsibility on large job. Good background, know men and equipment. Good references. Available any location immediately. PW-9062, Engineering News-Record.

CONSTRUCTION EXECUTIVE, proven record; Project Manager; Chief Estimator; Office and Field Executive. General Contracting. Available at an early date. PW-9118, Engineering News-Record.

BUILDING CONSTRUCTION Executive. Thoroughly experienced estimating; buying subcontracts; materials, etc.; solicitation of new business and field management. PW-9185, Engineering News-Record.

POSITION WITH Engineering Firm wanted. 1 year highway location, design, construction; 2 years military cantonment and airport layout, 2 years military airport construction management; 3 years design (including soils and asphalt testing, technical control) of airports for medium, heavy and very heavy military aircraft; 2 years geodetic control for photomapping; 1 year design of military base facilities including waterworks, sewerage works, review of architect-engineer plans. Greater part of experience gained during 10 years commissioned service, Corps of Engineers, U. S. Army. Currently on active duty in grade of captain with assignment as Project Engineer. Licensed land surveyor, Eastern state. Single. Foreign assignment in Europe, North Africa, South or Central America preferred. Will not consider Far East (west of Hawaii). Speak French, Italian, some Spanish. References. PW-9189, Engineering News-Record.

GENERAL SUPERINTENDENT over 30 years experience on building & heavy construction such as dirt moving, sewers, industrial buildings, pile driving, mass concrete, concrete paving, water mains, bridges & setting up of construction organizations, cost conscious. Available at once. PW-9191, Engineering News-Record.

CONSTRUCTION EXECUTIVE with broad experience, seeks new connection as Project Manager or similar position where high grade man is required to handle all details of contracting, field and office, buildings and heavy construction. New York or vicinity. PW-9203, Engineering News-Record.

WANTED: STRUCTURAL inspection on first class heavy bridge masonry or heavy building foundations. Experienced, honest, sober. C. C. Everhart, Moville, Iowa, U. S. A.

ENGINEER FOR Japan. Industrial, Construction exper. Immediately avail. Constr, Plant, Install-service, Design, field, sales. Box 52, Main P.O. San Francisco.

AVAILABLE

Project Manager, age 39, BSCE, excellent health, 18 yrs. broad experience industrial-chemical construction management multi-million dollar projects. Know costs, negotiation, labor and customer relations. Excellent references and connections. Available Oct. 1st.

PW-9197, Engineering News-Record
520 N. Michigan Ave. Chicago 11, Ill.

Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.

GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida

POSITIONS WANTED

MASTER MECHANIC or Equipment Superintendent. Fully qualified for responsible position. Have thorough knowledge of all types heavy construction equipment. Background of 30 years experience, including actual repairing, also supervision, maintenance and operation of heavy construction equipment. No preference as to location. References. PW-9225, Engineering News-Record.

STRUCTURAL ENGINEER, P.E. in N.Y., 9 years bldg. design and supervision. Responsible position arch., eng., or contr. PW-9216, Engineering News-Record.

CONSTRUCTION EQUIPMENT Manufacturer or progressive dealer: Do you need a top notch sales manager or right hand vice pres.? A young energetic executive with 15 years experience. Good practical engineering background. Knowledge of all phases of equipment business, sales, service, application, advertising and dealer set-up. Write to PW-9217, Engineering News-Record.

OFFICE MANAGER—Chief Accountant available short notice, seeks administrative position CPFF construction project. Fifteen years field experience large construction projects. Best references. PW-9241, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES REPRESENTATION, a partnership of two widely experienced graduate engineers available in southeast Texas. RA-9221, Engineering News-Record.

WORK WANTED

Registered Civil, Architectural & Structural Engineers desire subcontracts from contracting, engineering and architectural firms for design & preparation of drawings for buildings, bridges and other engineering works. WW-9194, Engineering News-Record.

WANTED

WANTED

WHIRLEY CRANE

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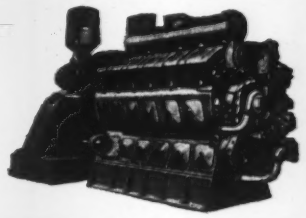

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500	Baldwin	VO-8	750	514	150	Ingersoll-Rand	8-4	225	600
500	General Motors	8-278A	750	720	150	Buckeye	80	240	600
500	General Motors	8-567	720	720	100	Worthington	BB-5	150	600
480	Worthington	DD-8	700	360	100	General Motors	3-268A	150	1200
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16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
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30"	4	1/8"	1/16"	32 Oz.
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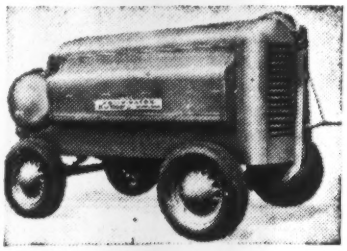

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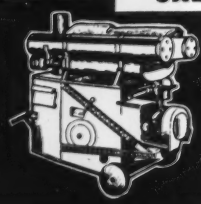

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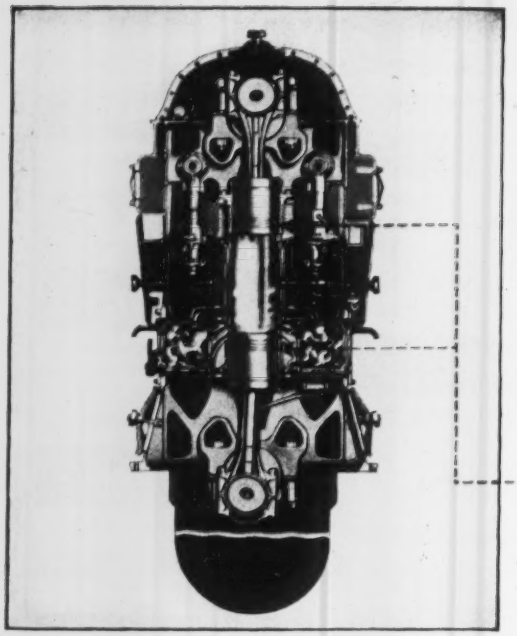
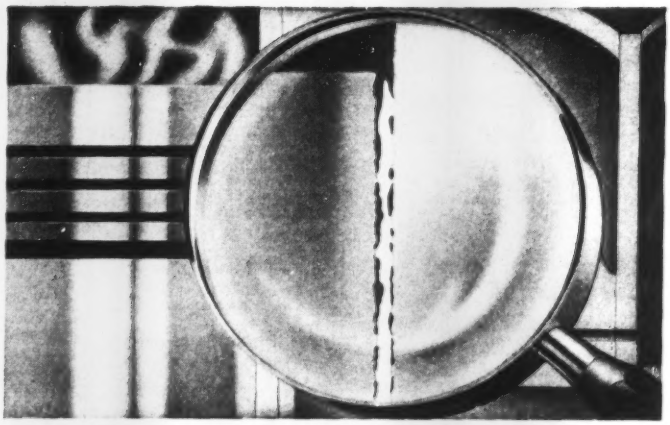
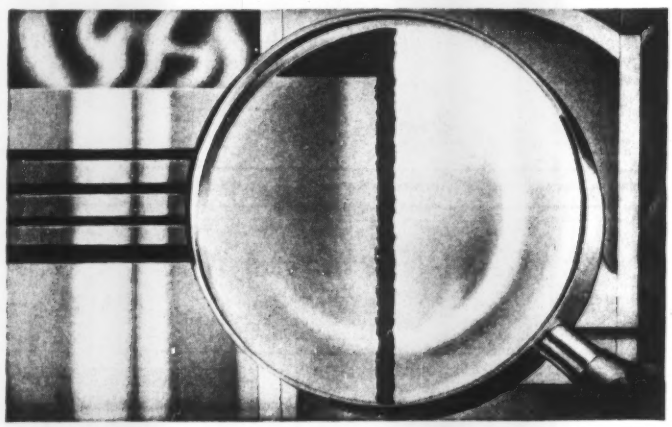


←That demon friction... not only at the points indicated here, but with all moving parts throughout any engine . . . can steal up to 50% of the power produced by your fuel.



↑ *Drawing above* illustrates how inferior diesel oils . . . oils with weak film strength and less free-flowing qualities . . . provide insufficient lubrication and set up friction points.

↓ *Shown below* is the complete coverage Cities Service D-C Oils provide. They provide a strong, adequate oil film, a positive seal between piston rings and cylinder walls.



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- **Provide a positive seal between piston rings and cylinder walls.**
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- **Clean as they lubricate.**

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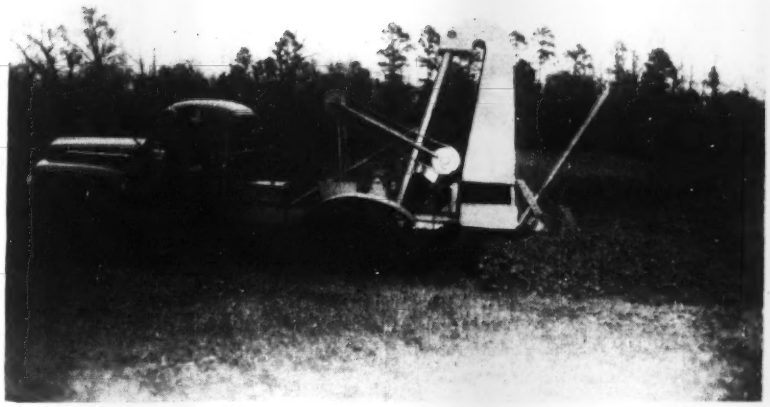

Earthripper has jackknife boom

A new truck-mounted Earthripper ditching machine features a jackknife boom that can be raised or lowered hydraulically.

The new design considerably reduces the headroom requirements of the machine, permitting it to travel beneath any underpass or other obstacle that provides clearance for the truck. Also, the new boom arrangement allows extending the bucket line at an angle behind the machine to start a ditch flush against walls, embankments, etc. When traversing a slope, the boom and bucket line can be adjusted to maintain vertical ditch walls regardless of the angle of the truck.

The standard model of the machine digs ditches 8 to 24 in. wide to a maximum six-foot depth. Larger models will dig to eight feet but with a minimum width of ten inches.

The Earthripper is regularly mounted on a Ford F-6 truck with power from the truck engine transmitted to the ditcher through chains and sprockets running in an oil bath. The Ford's differential is modified to synchronize digging speeds with truck travel—Digging speeds from 1 to 44 fpm can be obtained with the speed of the bucket line variable to meet conditions. Road speed of the unit is essentially that of the prime mover.

Price of the outfit is about $10,000 f.o.b. College Station, Tex., but this price can be shaved by about $2,300 if the customer supplies the truck. Owen-Pewthers Mfg. Co., 2600 Nottingham, Houston, Tex.

Welding cable connector designed for rough use

The Dalweld detachable welding cable connector has been designed to eliminate accidental disconnection.

The connectors have an expander-type male end that, when inserted in the female end, makes a wipe-joint fit said to assure electrical contact.

The connectors are made for both solder and mechanical connections in 400- and 600-amp capacities. Dalweld Co., 1 Bertel Ave., Mt. Vernon, N. Y.

High power to weight ratio featured on new chain saw

A 5½-hp gasoline engine drives the new 30-lb Homelite chain saw. This relatively high power on the Model 5-30 is said to permit the sawing of 20-in. dia. trees in as little as 20 seconds.

The new saw operates in all positions and incorporates an automatic clutch to smooth out operations. It is available with straight blades in six sizes from 18 to 44 in. Plunge-cut bow saws for one or two-man operation are available in 14 and 18-in. sizes. Homelite Corp., 111 Riverdale Ave., Port Chester, N. Y.

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OFFICIAL PROPOSALS

Continued from page 78

Bids: October 6, 1953

Route 43 (1927) U.S. 30 (1953), Sections 11C and 12F

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 43 (1927) U.S. 30 (1953), Sections 11C and 12F, from Route U. S. 206 to Clarks Branch, Widening and Resurfacing, including Drainage at Hammonton Lake, Hammonton Town and Winslow Township, Atlantic and Camden Counties. Length 5.081 miles. The principal items of construction are:

Roadway Items

Estimated:
25,529 cu. yds. Roadway Excavation-Earth
18,698 cu. yds. Subbase
10,467 sq. yds. Gravel Shoulders, 8" thick
46,642 sq. yds. Macadam Base Course, 5" thick
19,674 tons Pavement Type MA-BC-1 and 2
3,032 lin. ft. Rein. Concrete Pipe
30 Inlets
6,596 lin. ft. White Concrete Curb
4,563 lin. ft. Wire Rope Fence

Bridge Items

280 cu. yds. Foundation Excavation
295 cu. yds. Concrete in Structures
6,210 lbs. Reinforcement Steel in Structures

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, October 6, 1953, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000. and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

STATE HIGHWAY DEPARTMENT
Signed: A. Lee Grover, Chief Clerk

Bids: October 6, 1953

Drainage Improvement for Ocean Highway (Shore Road)

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Drainage Improvement for Ocean Highway (Shore Road) at Decatur Avenue, in the City of Pleasantville, Atlantic County. The principal items of work are:

Estimated:
2,000 sq. yds. Gravel Base Course, 8" thick
220 tons Bituminous Conc. Surface, Type FA-BC-1
290 lin. ft. 12" & 15" Rein. Conc. Pipe
1,040 lin. ft. 54" Rein. Conc. Pipe
643 lin. ft. 60" Rein. Conc. Pipe
8 Manholes
3 Catch Basins

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, October 6, 1953, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

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STATE HIGHWAY DEPARTMENT
Signed: A. Lee Grover, Chief Clerk

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4041) will be received at Tucumcari, New Mexico, until October 22, 1953, for furnishing labor and materials for earth lining, Station 78+55 to Station 90+55; Station 470 to Station 485; Station 630 to Station 648; Station 807 to Station 825+00; Hudson Canal. Location near Tucumcari, New Mexico, in Quay County. Principal items are: Excavation 45,000 cu. yds.; earth lining 38,000 cu. yds.; compacting earth lining 32,000 cu. yds.; and gravel blanket 5000 cu. yds. Completion time 120 days. For particulars, address Bureau of Reclamation, Tucumcari, New Mexico; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4037) will be received at Albuquerque, New Mexico, until October 13, 1953, for furnishing labor and materials for channelization of Rio Grande, San Antonio area and Escondida area, Middle Rio Grande Project, New Mexico. Location near San Antonio and Socorro, New Mexico. Principal items are: 270 acres clearing; 250,000 cu. yds. excavation; and other work. Completion time 200 days. For particulars, address Bureau of Reclamation, Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

Department of Commerce, Bureau of Public Roads, September 10, 1953. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., OCTOBER 8, 1953, for Project Ohio AA-7, Pike County, Ohio. 4.646 miles. Grading, draining, bituminous paving, reinforced concrete bridges, and other work. Reconstruction of Dutch Run Road from County Route 36 near Germany to East Boundary of A.E.C. Plant. The approximate quantities of the more important items are: 155,400 cu. yd. Excavation, 25,400 tons Limestone Base, 6,000 tons Hot Asphalt Pavement, and 1,045 cu. yd. Concrete. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Spelman, Division Engineer.

Continued on page 91

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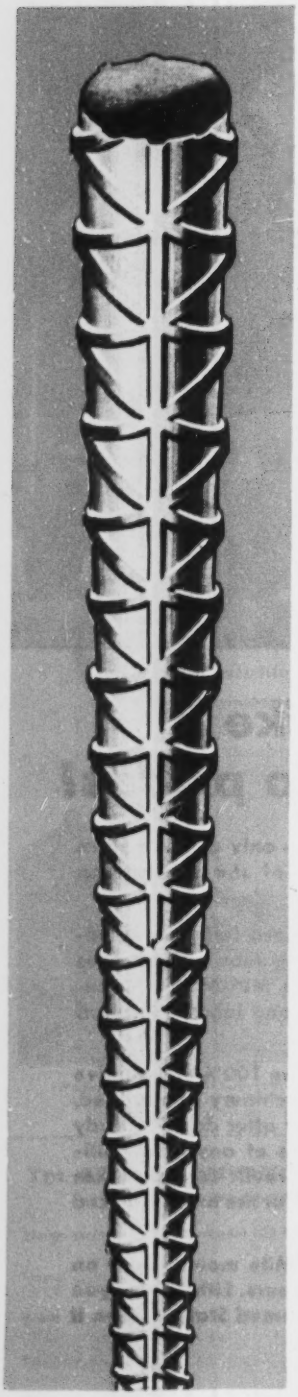

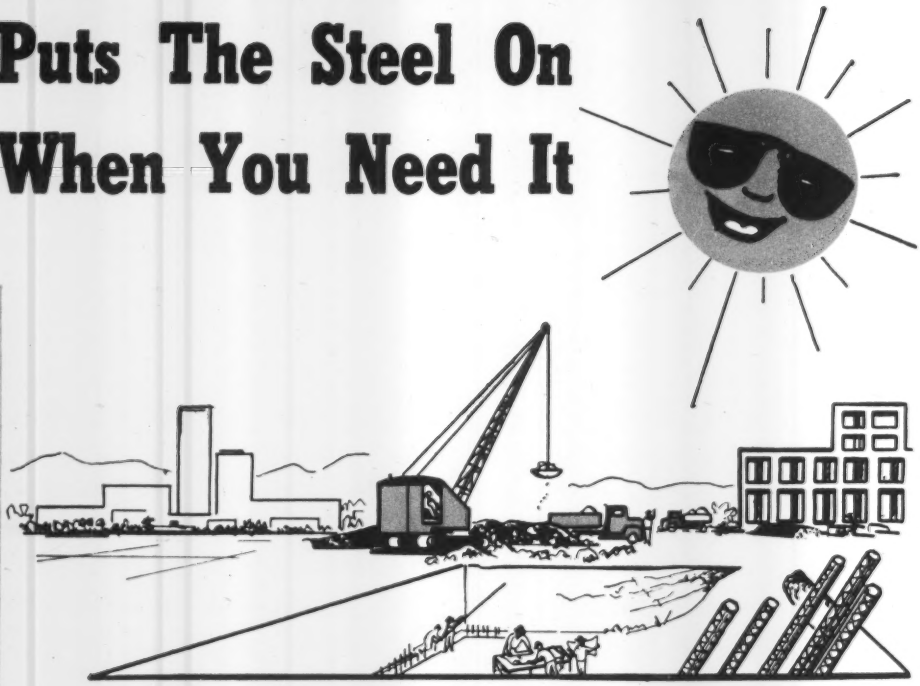

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OFFICIAL PROPOSALS

Continued from page 88

READVERTISEMENT
Bids: October 6, 1953

Route 26 Extension (1927), Section 3-A

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Rt. 26 Ext. (1927), Sec. 3-A, from Strawberry St. to Whitehead Road; Grading, Paving, Bridge & Walls, City of Trenton and Townships of Lawrence and Hamilton, Mercer County. Federal Project No. UI-196(1). Length 0.965 mile. The principal items of construction are:

Roadway Items

Estimated:
6,805 cu. yds. Roadway Excavation-Earth
500 cu. yds. Roadway Excavation-Rock
10,100 cu. yds. Wet Excavation
338,848 cu. yds. Borrow Excavation
52,810 cu. yds. Channel Excavation
21,209 sq. yds. Macadam Base Course
21,209 sq. yds. Pavement, Type MA-BC-2, 3" thick
25,026 sq. yds. Conc. Pavement Surface, Rein. 10" thick
3,097 lin. ft. Rein. Conc. Culvert Pipe
22,426 lin. ft. White Concrete Curb

Spillway Items

1,491 cu. yds. Earth Excavation
7,590 lbs. Reinforcement Steel
649 cu. yds. Class C Concrete
134 lin. ft. 95"x67" Corrug. Metal Pipe Arch, Bit. Coated

Bridge Items

6,258 cu. yds. Concrete in Structures
158,550 lbs. Reinforcement Steel in Structures
499,700 lbs. Structural Steel
88,860 sq. ft. Steel Sheet Piling
1,035 lin. ft. Untreated Timber Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, October 6, 1953, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the revised statutes of New Jersey and supplements, and by P.L. 413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 N. Willow St., Trenton, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Bldg., 1035 Parkway Ave., Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500, nor more than $20,000, and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

STATE HIGHWAY DEPARTMENT
Signed: A. Lee Grover, Chief Clerk

Continued on page 92

STRAND & SONS *General Contractors*
3939 UNIVERSITY WAY
SEATTLE 5, WASHINGTON
PHONE MELROSE 0900

Masonite Corporation
111 Sutter Street
San Francisco 4, California

Gentlemen:

It gives us great pleasure to advise you of the economical and successful advantages we have enjoyed from using Masonite Concrete Form Presdwood on the Men's Residence Hall at the University of Washington in Seattle.

We have used it eight times to date and feel confident it will stand up for the entire 12-time use required for this 12 story building.

In addition, it has proved very economical, because the extreme smoothness of the concrete surface has reduced our labor for sacking and grinding. In fact, your Concrete Form Presdwood gives us the smoothest surface we have ever been able to produce.

Yours very truly,

STRAND & SONS

By Ray W. Strand

CONCRETE EVIDENCE
that MASONITE CONCRETE FORM PRESDWOOD can be used again and again!

You can profit by the experience of others. You can save time and cut costs with this tough, grainless, all-wood hardboard. Comes in handy 4′ x 8′ and 4′ x 12′ panels...easy to cut and fit.

Here's a tip: For unpainted surfaces, pour against the screen side of Concrete Form Presdwood®. You'll cut hand-rubbing time 50% or better!

- Won't split, splinter or crack.
- Can be curved for arches, columns, etc.
- Easily worked with carpentry tools.
- Insures complete, uniform hydration.

Send for the complete facts about Masonite Concrete Form Presdwood

MASONITE® CORPORATION
Dept. ENR-9-24, Box 777, Chicago 90, Ill.

"Masonite" signifies that Masonite Corporation is the source of the product

Please send me your brochure on Masonite Concrete Form Presdwood.

Name.....
Address.....Zone.....
City.....State.....
County.....

Better Hardboards for Better Concrete

CUTS MORE CONCRETE PER DAY BECAUSE THE MODEL 252 IS SELF-PROPELLED! OVERCOMES OPERATOR FATIGUE, ELIMINATES FREQUENT REST PERIODS, COVERS FAR MORE FOOTAGE IN A DAY!

★ **LONGER BLADE LIFE**—No sudden bumps and jolts to add unnecessary wear and tear on the diamond wheel. Smooth, uniform POWER FEED adds longer blade life—CUTS COSTS! Actual field reports have shown blade life as much as doubled.

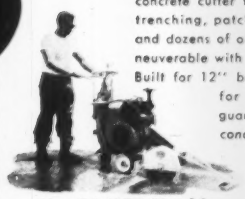
★ **DEEP CUTS**—approximately 7" maximum with 18" blade. 13.5 h.p. engine furnishes power to spare.

★ **DOUBLE END SPINDLE** for right or left hand cutting.

★ **HINGED BLADE GUARDS**—Front half lifts, exposing blade for close-up work.

Ask your Felker DI-MET Representative for recommendations.

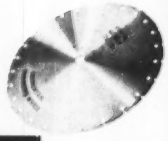
POWER — SPEED — MANEUVERABILITY PLUS LOW COST!



Felker DI-MET Model 135 Here's the concrete cutter for your every-day jobs . . . trenching, patching, cutting curbs, ramps and dozens of other uses! Light, easily maneuverable with powerful 13.5 h.p. engine. Built for 12" blades but powerful enough for 18" blades (with special guard). 3 wheel design. *Other concrete cutters available. Ask for details!*

Use DI-MET Machines and Blades for every concrete cutting requirement!

Here's an unusual application—sawing up and re-locating a concrete wall! Savings: $241.00 on a $991.00 job!



Felker DI-MET the SEGMENTED type diamond blade with peak performance! Built by the only manufacturer making both concrete cutters and diamond wheels. Band variations for every cutting requirement insure *more footage—lower cost per cut!*

FELKER DI-MET

FELKER MANUFACTURING CO.
TORRANCE • CALIFORNIA

World's Largest Manufacturer of Diamond Abrasive Cut-off Wheels and Equipment

OFFICIAL PROPOSALS

Continued from page 91

Bids: October 12, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 1st day of October, 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, District Engineer, 353 Broadway, Albany, New York				
Essex	FARC 53-120	Upper Jay Keene, S.H. 5236; Jay Upper Jay, S.H. 5235, Project F 1034(2)	0.75	Bit. Mac. Type 1 Br. Comp. I Beam 180'	$18,000 Plans $15	$333,000
Rensselaer	R.C. 53-105	Various Highways in Rensselaer County	....	Removal of 187 Trees	$900 Plans $10	16,000
		DISTRICT No. 6				
		J. H. Thomas, District Engineer, State Office Building, Hornell, New York				
Steuben	FAC 53-19 FARC 53-123	Corning City: West City Line-Chestnut St., Erie Ave. Denison Parkway Corning City: Denison Parkway Extension F.A.C. 49-4. Project U 225(8)	1.49	Asp. Conc. Ty. 2A=0.98 Mi.; Grading & Misc. Work = 0.51 Mi.	$44,000 Plans $15	796,000
		DISTRICT No. 8				
		J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, New York				
Westchester	H.T. 53-11 S.T. 53-34 R.C. 53-122	New York State Thruway—Hudson Section—Subd. 10 (Tuckhoe Road Tarrytown); New England Interch.; Ramps P, Q, J and K; Eight Misc. Secondary Roads; Ardsley Village, S.H. 1053 and Ardsley Elmsford Pt. 1, S.H. 18	6.53 (Acc.) 7.61 (Thy.)	9" Cem. Conc. Pavt. 2 @ 37' Var. Wide=7.58 Mi. 9" Unreinf. Cem. Conc. Pavt. Var. Wide=2.68 Mi. Asp. Conc. Ty. 1A, Opt.=2.62 Mi.; Grading=0.71 Mi.; T.C. Bit. Mac. P.M.=0.55 Mi.; 5 Hy. Seps. Comp. 1 Beam 235.5', 243.1', 362.7', 59' and 142.5'; 1 Hy. Sep. Plate Girder 109'; 3 Brs. Twin Closed Boxes 36.8', 30.2' and 32.6'	$700,000 Plans $100	12,394,000
		DISTRICT No. 10				
		M. E. Goul, District Engineer, Montauk Highway, Babylon, L. I., New York				
Bronx	FACBE 53-2	Cross Bronx Expressway Contract 9K (White Plains Rd. Zerega Ave.) Project UI 1084(18)	1.29	9" Colored Cem. Conc. Pavt. 2 @ 36' Wide=0.63 Mi. Misc. Work=0.66 Mi.; 2 Hy. Seps. R.C. Rigid Frame 91' and 87.7'; 1 Ped. Overpass Steel Girder 99'	$380,000 Plans $100	6,903,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

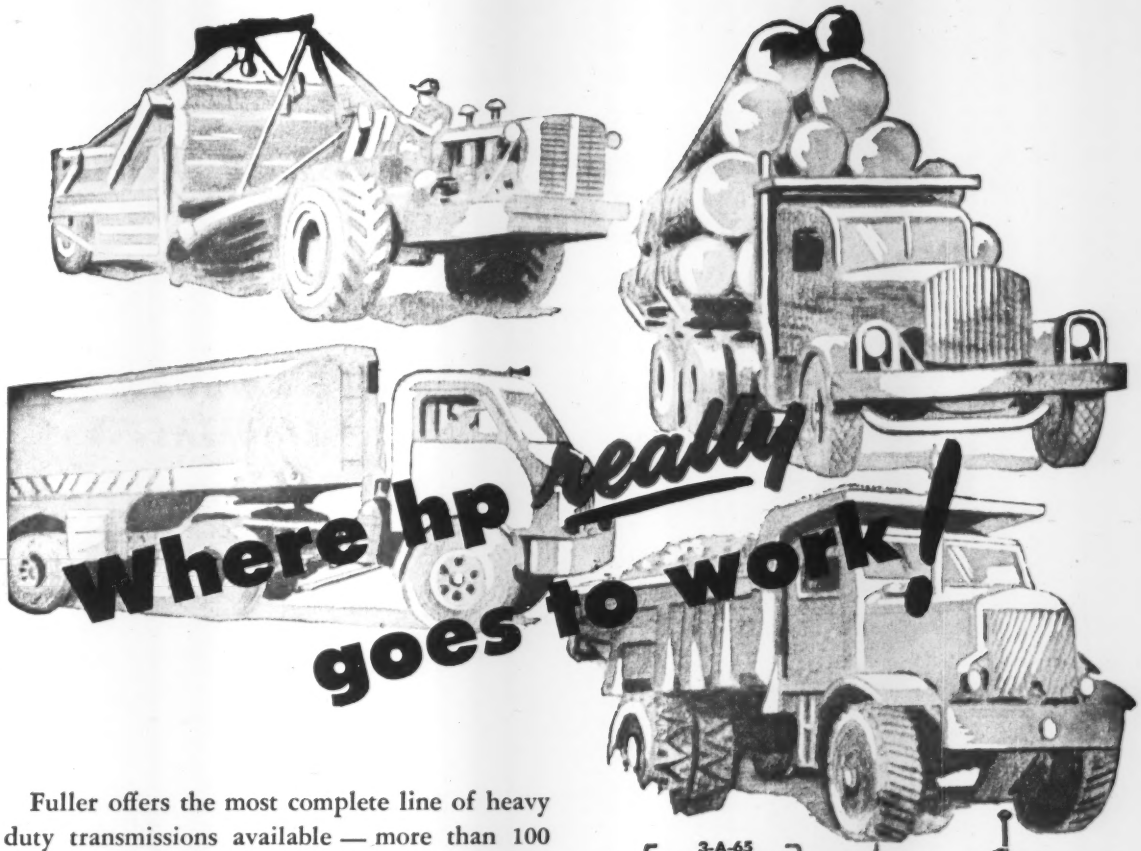
Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

SUPT. OF PUBLIC WORKS
B. D. TALLAMY

Continued on page 95



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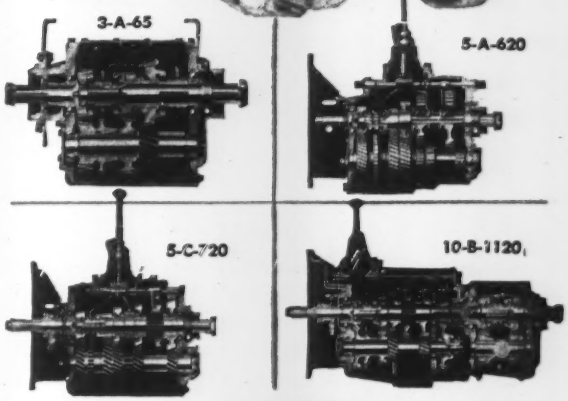
Fuller offers the most complete line of heavy duty transmissions available — more than 100 models—for every heavy duty application using internal combustion engines.

There's a Fuller unit or auxiliary transmission for any application—from two tons to the biggest —to provide exactly the *right gear ratios* for your job—to help your driver keep the engine turning at its most effective speed . . . to assure faster trips —higher average speeds.

That's why you see the Fuller name plate on the gear boxes of more and more trucks and industrial machines. Demand transmissions from the *Fuller* line to get maximum performance from *your* rigs.



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FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 1060 E. 11th Street, Oakland 6, Calif.

BARBER-GREENE HEAVY DUTY DITCHER

MODEL 44-C VERTICAL BOOM DITCHER

for lowest cost per foot of trench in all weather

SAVE ON JOBS LIKE THESE:

- Highway Widening
- Sewer, Water and Gas Distribution
- Pipe Line Construction
- Airport Drainage
- Uncovering Joints
- Placing Conduit Tile
- Building Foundations
- Farm Tiling
- Grave Digging

DIGS CLEAN... leaves vertical walls . . . square ends . . . eliminates most expensive handwork.

MILLING ACTION... closely spaced buckets pare small increments as a milling machine cut, metal.

OVERLOAD RELEASE... slips when overload occurs . . . automatically re-sets itself . . . no down time for repairing chain links, etc.

Only Barber-Greene offers so many proved ditcher advantages to save time and money on all trenching operations. For instance, the Vertical Boom means a compact, easily maneuvered machine: digs straight down, right up to walks, foundations, underground pipes, etc. . . . digs *all* the ditch . . . no expensive handwork required. The Vertical Boom stays *down* — the harder the digging, the harder the buckets hold it down. Cuts trench to 8'-3" depth, 24" wide.

Self-cleaning "kick-out" buckets operate in a vertical plane . . . produce the famous B-G milling action that cuts through coral, frozen ground, caliche and other formations that completely stop other ditchers.

Another time- and money-saving feature is the exclusive B-G overload release that slips on overload and automatically resets itself until the obstruction is removed or the operator stops machine—and then it re-sets itself for continued operation, protecting machine, hidden mains, cables, etc.

Plan to put the advantages of the B-G Model 44-C to work for you.

Barber-Greene BG

Aurora, Illinois, U. S. A.

OFFICIAL PROPOSALS

Continued from page 92

Bids: October 6, 1953

Route 44 (1927) U. S. 130 (1953), Sections 15D and 16C

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 44 (1927) U. S. 130 (1953), Sections 15D and 16C, from Berkeley Road to Repaupo Road—Paving, in the Townships of Greenwich, East Greenwich and Logan, Gloucester County. Federal Project No. F-122(13). Length 3.746 miles. The principal items of construction are:

Estimated:
- 36,224 cu. yds. Roadway Excavation-Earth
- 99,666 cu. yds. Borrow Excavation
- 61,639 cu. yds. Subbase
- 54,747 sq. yds. Gravel Shoulders, 8" aver. thick.
- 271,299 sq. yds. 4" Topsoiling
- 84,628 sq. yds. Macadam Base Course, 6" thick
- 84,628 sq. yds. Pavement Type MA-BC-2, 3" thick
- 105,497 sq. yds. Conc. Pavement Surface, Rein. 9" thick
- 1,948 lin. ft. Rein. Concrete Pipe
- 1,336 lin. ft. Corrugated Metal Pipe
- 44 Inlets
- 50,864 lin. ft. White Concrete Curb
- 15,421 lin. ft. Wire Rope Fence

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, October 6, 1953, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the revised statutes of New Jersey and supplements, and by P.L. 413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 21 Delaware Street, Woodbury, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Ave., Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000, and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

STATE HIGHWAY DEPARTMENT
Signed: A. Lee Grover, Chief Clerk

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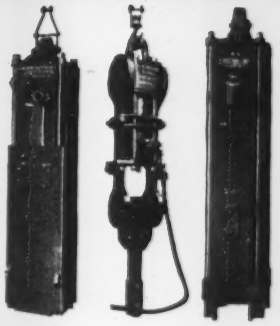
WIDE-RANGE LINE OF
PILE HAMMERS and EXTRACTORS



Now made in complete standardized line of eleven double-acting hammers, five single-acting hammers and two double-acting extractors. Write for free descriptive Bulletins.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

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WELDING CONNECTORS

Saxe Welding Connection Units position and secure structural parts to be welded

Clip K3A permits an adjustable connection.

These widely used units eliminate all hole punching and, with welding, produce the most economical, safe and quickly erected structural frame.

Write for 1951 edition, Structural Welding Practice Manual.

J. H. WILLIAMS & CO.
Buffalo 7, New York
Air Reduction Canada, Ltd. Montreal 2, Canada

TEST BORINGS
for
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- **MINERALS**
- **DAMS & BRIDGES**
- **BUILDINGS**

We Look into the Earth

PENNSYLVANIA Drilling CO.
DRILLING CONTRACTORS AND MFRS.
PITTSBURGH 20, PA.

EDITORIALS

Greatness in leadership

If Curtis McGraw was not personally known to every reader of Engineering News-Record, it was not from want of desire and effort on his part. As president and chairman of the board of the McGraw-Hill Publishing Co., publishers of this journal, he advocated principles and policies that emerged from the needs and aspirations of people—employees, business associates and the great body of technical and business people that the enterprise he headed serves. In this respect his leadership stemmed from the same sources as did that of his father, the late James H. McGraw, Sr., who did so much to establish technical and business journalism on the high plane on which it moves today.

In these days of striving for effective leadership the success of Curtis McGraw should, we think, afford an inspiration to our many readers who head engineering and construction organizations that must operate as a team. Mr. McGraw started with the tenet that employees are individuals with personal problems that deserve to be solved. And with a truly great capacity for friendship and fairness, he solved more of these problems than he could possibly have been aware of, for he had the human touch—without which employee benefits, no matter how liberal—fall short of effectiveness.

Readers and advertisers in the various magazines were also individuals to Curtis McGraw. And while he could not know each of them as such, the same qualities of friendship and fairness dominated his thinking about them. His great concern was always with the type of service that each reader and advertiser was getting, and whether it met his needs.

In these very sincerely human traits, Curtis McGraw seemed to us who knew him to exhibit true greatness in leadership. They are traits that if more broadly nurtured would make this rather good world a vastly better one. They are traits that we on Engineering News-Record shall try to keep alive and live by.

Non-partisan water policy

An imposing array of talent has been named to set up a program for the water-resources section of the Mid-Century Conference on Resources for the Future, to be held in Washington Dec. 2-4 (ENR Sept. 17, p 23). Also, a review of the names of the steering committee indicates that a serious effort was made to put the planning on a non-partisan level. That is highly desirable if the conference is to be a real contribution toward development of a national water-resource policy that will not be scrapped with each change in administration in Washington.

In the matter of water-resource development, this nation has two major needs: a workable, long-range water-resource development policy, and a better system than it now has for determining what agency is to construct projects that are to be built by the federal government. The reconstituted Hoover Commission can be expected to come up with an answer to the latter need, but no solution of the policy question is in sight.

On water-resource policy, the Roosevelt administration was not lacking in activity, but that activity was highly partisan and appeared to be centered on developing a great federally controlled public power system.

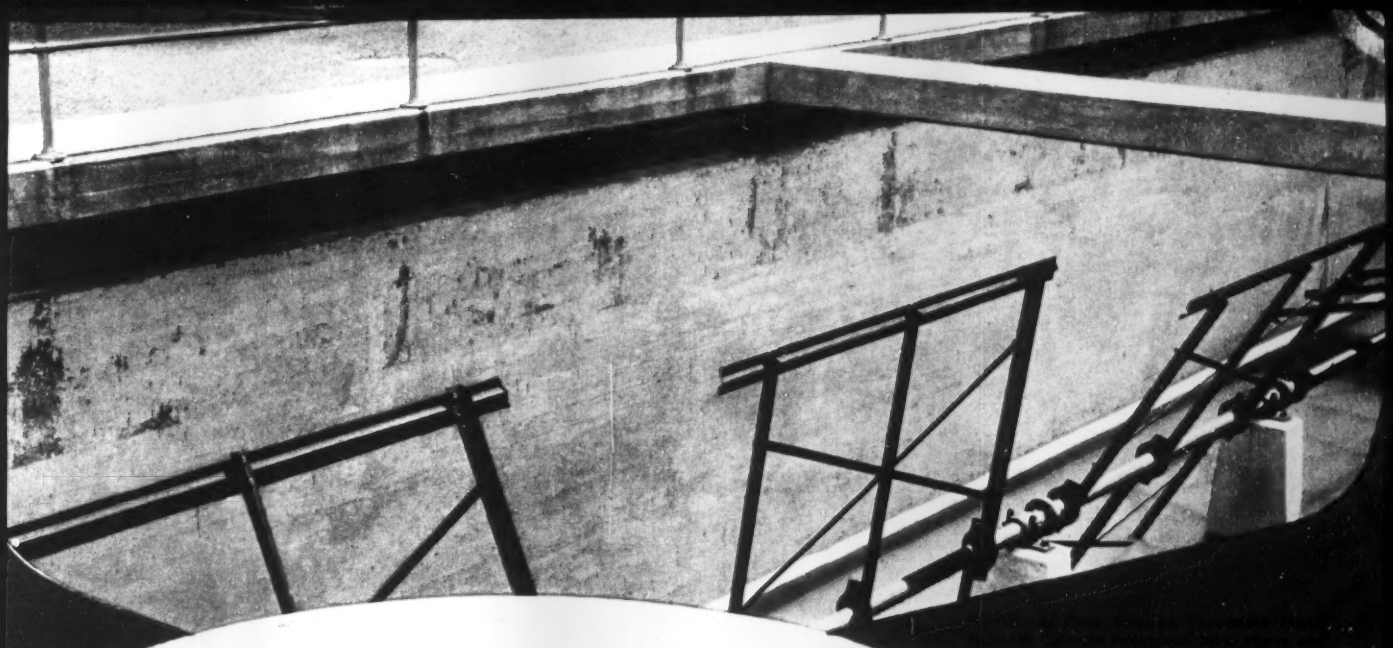
The Truman administration did better. Its commission, headed by Morris L. Cooke, made a serious effort to set forth a federal policy that would be widely acceptable. In fact, it went so far toward meeting the conservative viewpoint as to make its proposals unacceptable to extremists among President Truman's close advisers. As a result, legislation the commission proposed to give effect to its recommendations never was submitted to Congress for action.

The conference to be held in Washington in December is wholly unofficial. Its sponsor is a non-profit organization called Resources for the Future, Inc., which has received a grant from the Ford Foundation to cover the cost of the meeting. Because it is unofficial, it can do little directly toward getting a national water policy enacted by Congress. Nevertheless it can serve a very useful purpose in emphasizing the need for such a policy and by indicating the areas in which a widely acceptable policy can be developed. And if the outcome should be the appointment by the Eisenhower administration of a non-partisan committee to develop a national policy, the effort will have been well spent.

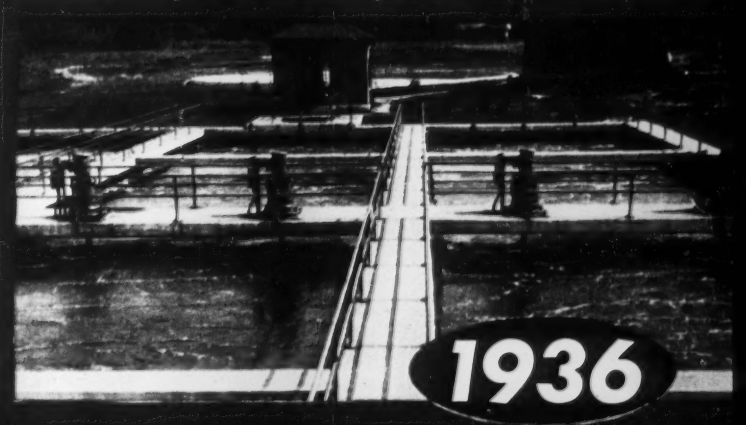
Fine choice for a difficult task

Nomination of Lieut. Gen. Raymond A. Wheeler (Retired) to be chief of the United Nations Relief and Works Agency for Palestine Refugees will be applauded by all who know anything of General Wheeler's record. General Wheeler has first-hand knowledge of the Middle East, having been sent there late in 1941 to help get supplies to Russia through the Persian Gulf. From there he went to India to organize the Service of Supply of the China-Burma-India Theater. In July, 1945, he was advanced to Commander of the India-Burma Theater.

Add to this experience in Asia wide knowledge of how our federal government operates, which was gained in a variety of important administrative jobs that culminated with service as Chief of Engineers of the Army from 1945-1948, also his experience as engineering adviser to the International Bank for Reconstruction and Development since he retired as Chief of Engineers, and you have a combination that should succeed in the task of improving the lot of refugees in Palestine if anyone can.



After 17 years of severe service
POZZOLITH CONCRETE in good condition



AT the time of a recent inspection of the Mansfield Sewage Treatment Plant, now in service 17 years, the concrete was found to be in good condition.

Pozzolith produces durability like this in sewage treatment plants — one of the most severe exposures to which concrete is subjected — because it disperses cement, reduces water, entrains the optimum amount of air and conforms with the water-cement ratio law.

Pozzolith also provides important construction advantages for this type of concrete work. Among these advantages are easy placeability for thin wall sections, low shrinkage and no segregation.

Investigate the advantages of Pozzolith for your next job . . . it will enable you to obtain the required qualities *at lower cost than by any other means.* "See-for-yourself" Pozzolith demonstration Kit supplied on request . . . without cost or obligation.

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, ONTARIO

Kentucky put the emphasis on flexibility when it designed this highway

Like other large cities, Louisville, Ky. has found it more and more difficult to cope with the traffic problem. To help relieve this situation, the Kentucky State Highway Department is constructing what is known as the Inner-Belt Highway, over which traffic entering Louisville from the east and south by-passes the heart of the city.

The most notable feature of this project was Kentucky's choice of a flexible type of construction from top to bottom. It consists of a 9-inch subbase of waterbound macadam, covered by a 3-inch base of hot-mix Texaco Asphaltic Concrete. To complete the highway, a Texaco Asphaltic Concrete pavement was laid in two courses, each 1½-inches thick. The result is a total thickness of 15 inches of completely flexible construction, which is capable of absorbing heaviest traffic impact year after year with a minimum of maintenance.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the road builder a wide choice of improvements for his street or highway. Whether the volume of traffic calls for a heavy-duty pavement like that on Louisville's Inner-Belt Highway, a low-cost surface for a secondary road, or an inexpensive mat to eliminate dust and mud, there is a Texaco Asphalt product to fit the need. Helpful information for the road builder on all of these types is supplied in two booklets, which our nearest office will be glad to send you.

Refined from scientifically selected crudes. Texaco Asphalt products have earned and held the confidence of America's road builders for 50 years.

Constructing one of three courses of resilient, heavy-duty Texaco Asphaltic Concrete over a waterbound macadam subbase on Louisville's new Inner-Belt Highway. The contractor was the Breslin Construction Company of Louisville.

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